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DENVER, COLORADO

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Knight	94SX728	289-5
Don McGohan	WA-310	289-6
Pedersen	PCP-20	289-7
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RCA Victor	21-S-548N, NU (Ch. KCS92J, K & Radio Ch. RK191) Tel. Rec.	289-9
Silvertone	5106-2, 5114-2, -2W, 5116-2 (Ch. 549.16000, 549.16001, 549.16002, 549.16003, 549.16004) Tel. Rec.	289-10
Silvertone	5227 (Ch. 528.33200)	289-11
Sylvania	511 Series (Ch. 1-527-1, -2) Tel. Rec.	289-12
Trav-Ler	55-38	289-13
Zenith	T521F, G, R, W, Y T522F, G, R, W Prod. Chg. Bul. 130	289-1

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 5 IN SET 276

CORONADO MODELS TV1-9017A, B, TV1-9135A, B, TV1-9137A, B, TV1-9139A, B

Coronado models TV1-9017A, B and TV1-9135A, B were covered in Photofact Folder 5 — Set 276.

Models TV1-9137A, B and TV1-9139A, B are electrically identical to the models covered. The following production changes were made in later production. These changes cover all models.

TO IMPROVE SYNC STABILITY

C53, C54, R48 and R49 are replaced by a couplate (part #17A-24212). A partial schematic showing the new wiring arrangement is given in Fig. 1.

TO INCREASE BRIGHTNESS LEVEL

R38 is disconnected from boost and reconnected to the 210V source. In later production, R38 is omitted.

HORIZONTAL CIRCUIT REVISED

A partial schematic showing the new horizontal AFC and oscillator circuit is given in Fig. 2.

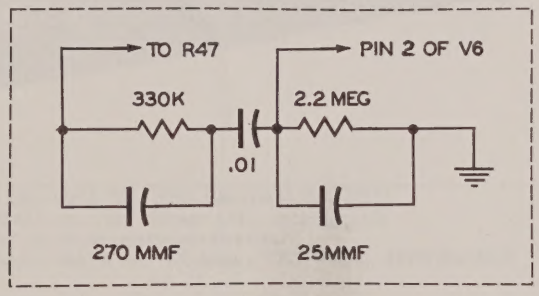

FIG. 1

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 15 IN SET 238

ZENITH MODELS T521F, G, R, W, Y T522F, G, R, W

Zenith models L515 and L520 were covered in Photofact Folder 15 — Set 238.

Models T521F, G, R, W, Y and T522F, G, R, W, V are identical, except for the addition of a radio-phono switch (part #85-495). A partial schematic is given in Fig. 3 showing the new circuit arrangement.

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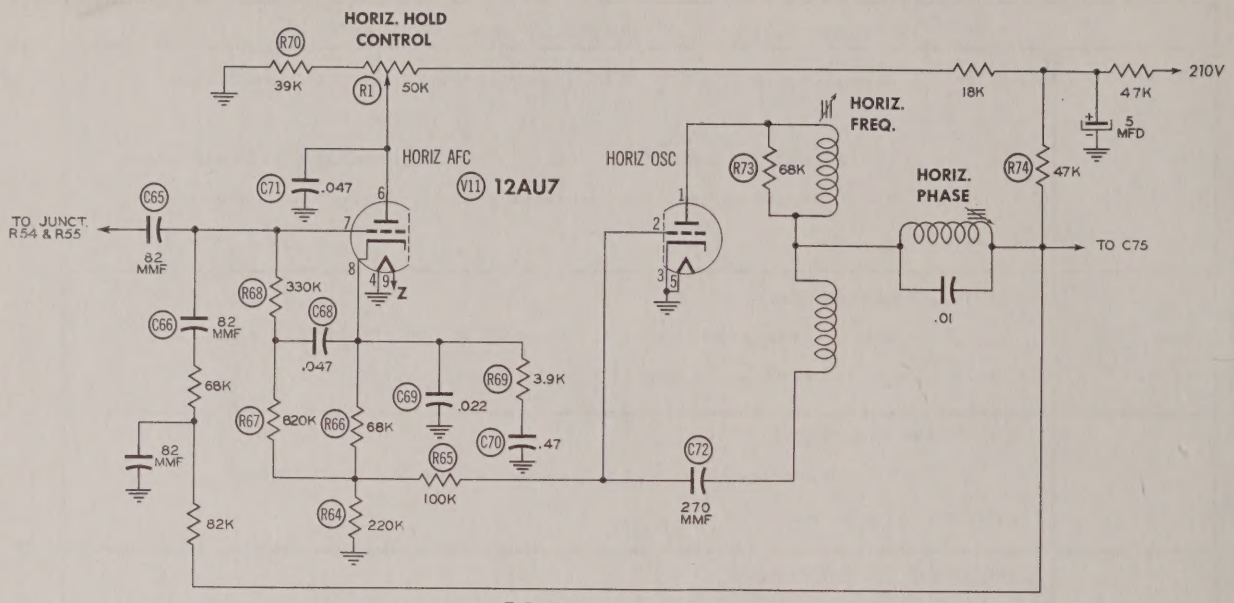
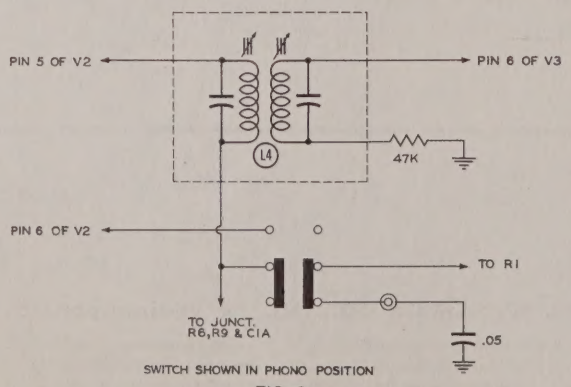


FIG. 2



SWITCH SHOWN IN PHONO POSITION

FIG. 3

AIRLINE MODELS GSL-1614A, GSL-1615A, GSL-1616A, GSL-1617A

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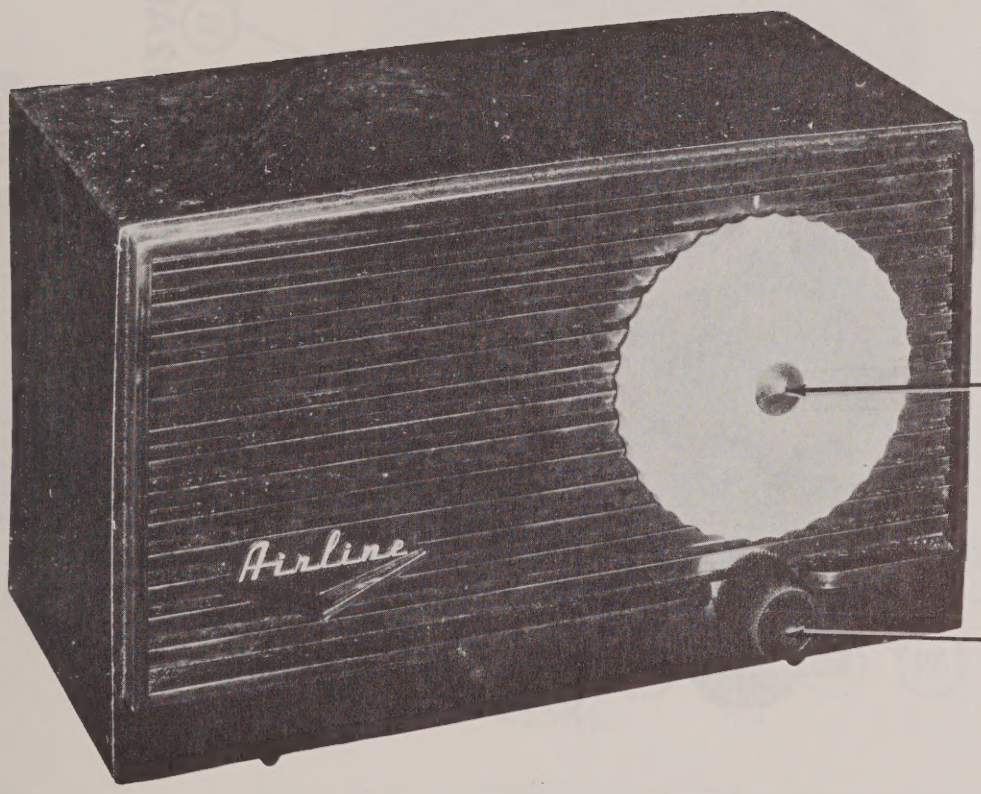
AIRLINE MODELS GSL-1614A, GSL-1615A, GSL-1616A, GSL-1617A



AIRLINE MODELS GSL-1614A, GSL-1615A, GSL-1616A, GSL-1617A

TRADE NAME	Airline Models GSL-1614A, GSL-1615A, GSL-1616A, GSL-1617A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Four)	Types 12AU6 Conv., 12AV6 Det.-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to antenna Terminal Lug. Lowside to B-	455KC (400Ωmod.	Tuning gang Fully open	Across Voice coil	A1, A2	Adjust for maximum output
2.	"	"	1620KC	1620KC	"	A3	"
3.		Loop	1400KC	1400KC	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

AIRLINE
MODEL GSL-1614A

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
V1	Converter	12AU6	12AU6	7BK	
V2	Det. -AF Amp.	12AV6	12AV6	7BT	
V3	Audio output	50C5	50C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	AIRLINE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	40	150	R-1482			TCT3114	TDL-432	FMT-321	
B	20	150							
C	20	15							
C2	100			D6-101	GP1K-101	UC-531		K-1310	
C3	56			TCZ-56	PO-337-560				
C4	56			TCZ-56	NPO-337-560				
5A	220								
B	2000								
C	5000		♦ R-1487	♦ PC-150	♦1408-01				
D	250								
E									
C6	10000			DD-103	811-01	DC-511	IMP4-S1	330411	
C7	.022	400	N-1461	DF-203	817-02	PT4122	IMP4-S22	3304122	
C8	.047	200	R-1462	DF-503		PT4147	IMP4-S47	3304147	

♦ Items C5A, C5B, C5C, C5D, C5E, R3A, R3B, R3C are combined in one unit. When replacing items separately, items C3D and C3E should total 250 MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	2Meg	½	R-1455	Q13-139	A47-2Meg-Z	AB-7	U-55	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIRLINE PART No.	IRC PART No.	
R2	2.7Meg	½	♦ R-1487	BTS-2.7Meg	
R3A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½		BTS-470K	
C	470KΩ	½		BTS-470K	

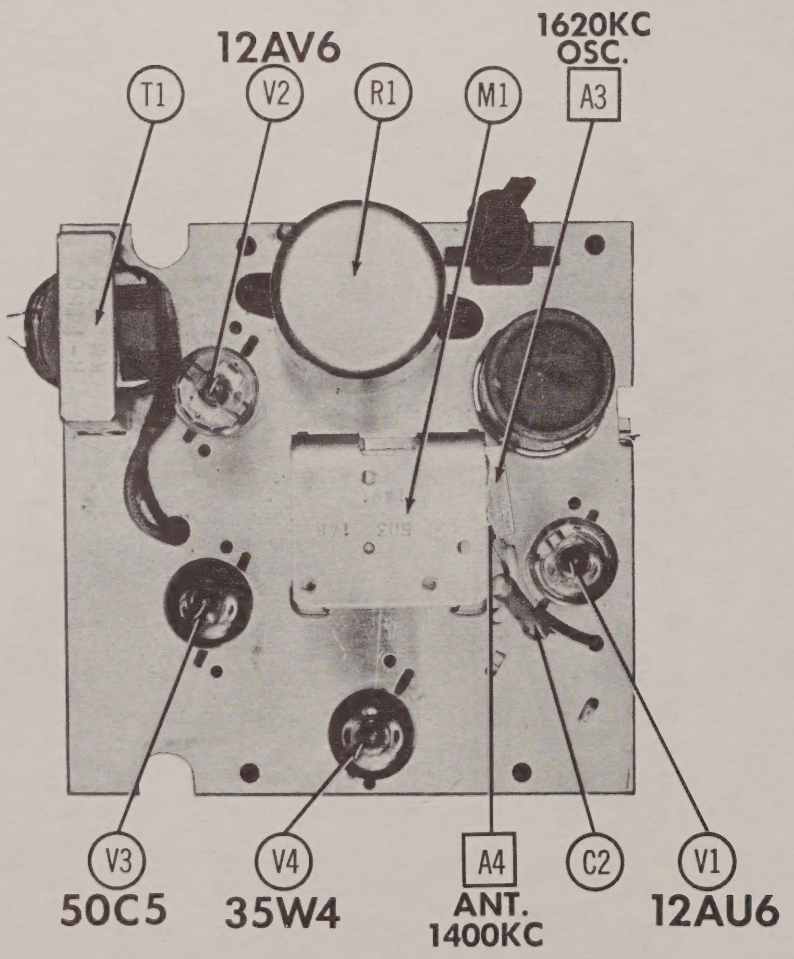
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIRLINE PART No.	IRC PART No.	
R4	180Ω	½		BTS-180	
R5	2200Ω	½		BTS-2200	
R6	68Ω	2			
R7	22Ω	½		BTS-22	

♦ Items R3A, R3B, R3C, C5A, C5B C5C, C5D, & CE are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.4KΩ	3.7Ω	R-1480	Z1101①	A-3025 ①	A-3332①			① Bend Mtg. tabs down, mount same as original unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	4"	PM	3.7Ω	R-1478	4A07	

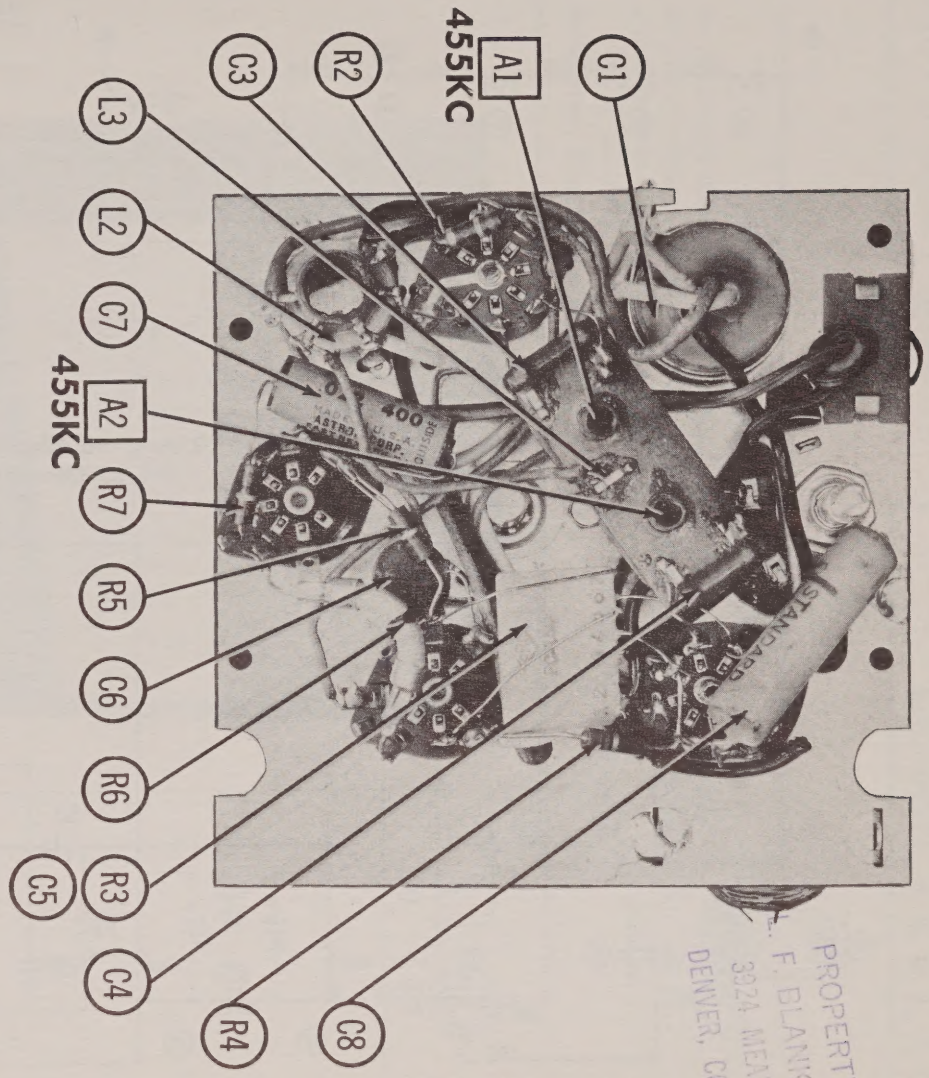
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Antenna coil	.6Ω		R-1485				Tapped
L2	Osc. coil	1Ω	7.5Ω	R-1486				Tertiary winding-1.7Ω
L3	IF trans.	30Ω*	30Ω	R-1484				*Tapped ⓐ .9Ω

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1	Tuning cap.	R-1481	2 gang (21-290 MMF, 12-115 MMF)
	Cabinet	#519	Model GSL-1614A
	Cabinet	#520	Model GSL-1615A
	Cabinet	#521	Model GSL-1616A
	Cabinet	#522	Model GSL-1617A
	Knob	N-8431	On-Off-Volume-Model GSL-1614A
	Knob	N-8432	On-Off-Volume-Model GSL-1615A
	Knob	R-1599	On-Off-Volume-Model GSL-1616A
	Knob	R-1530	On-Off-Volume-Model GSL-1617A
	Knob	R-1602	Tuning-Model GSL-1614A
	Knob	R-1603	Tuning-Models GSL-1615A, 1616A, 1617A

CHASSIS—BOTTOM VIEW



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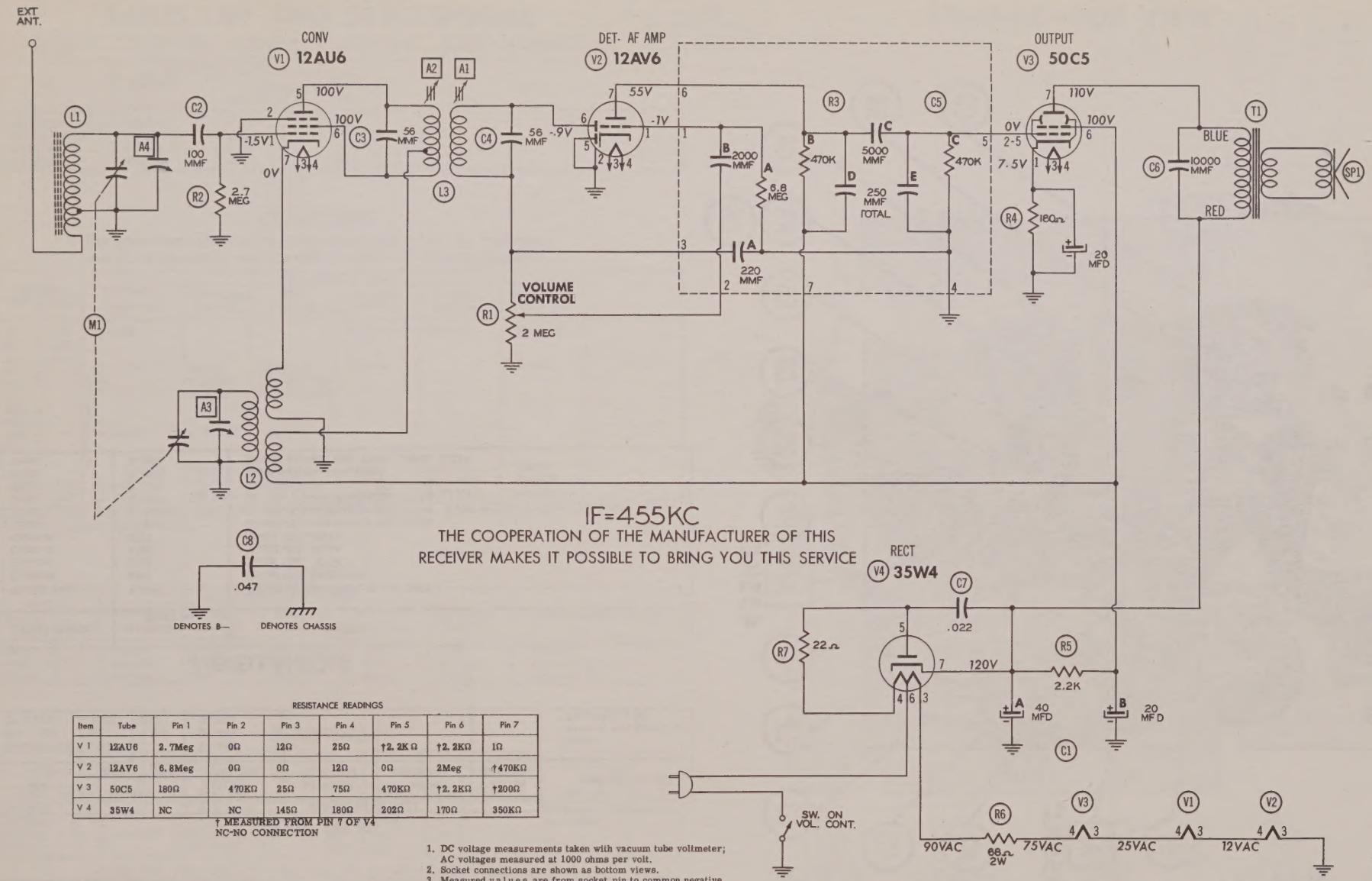
AIRLINE
MODEL GSL-1614A



IF=455KC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AU6	2.7Meg	0Ω	12Ω	25Ω	†2.2KΩ	†2.2KΩ	1Ω
V 2	12AV6	6.8Meg	0Ω	0Ω	12Ω	0Ω	2Meg	†470KΩ
V 3	50C5	180Ω	470KΩ	25Ω	75Ω	470KΩ	†2.2KΩ	†200Ω
V 4	35W4	NC	NC	145Ω	180Ω	202Ω	170Ω	350KΩ

† MEASURED FROM PIN 7 OF V4
NC-NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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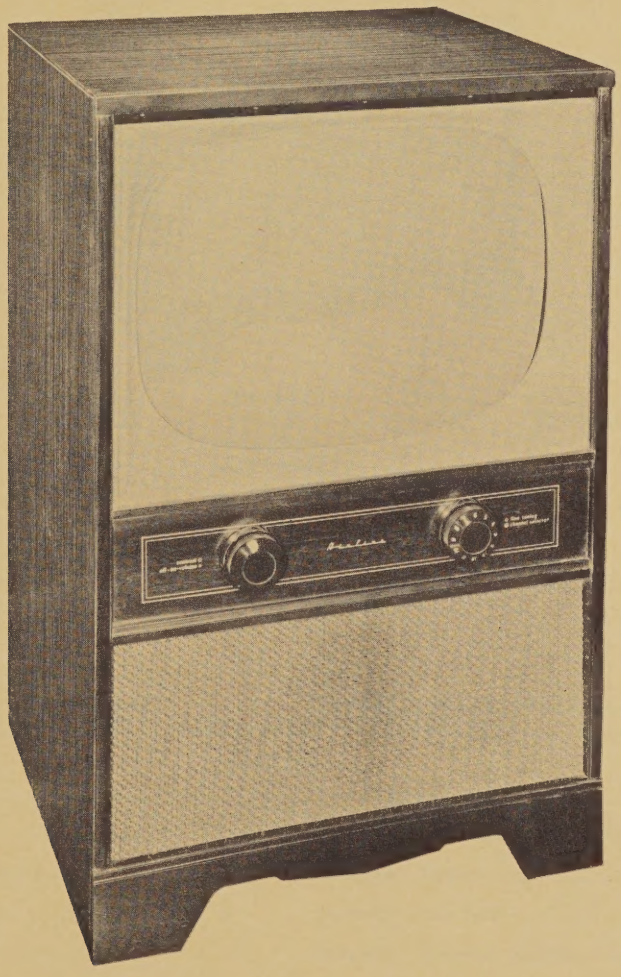

MODEL WG-5000A

AIRLINE MODELS
WG-5000A, B, C, D, E, F, G

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AIRLINE MODELS
WG-5000A, B, C, D, E, F, G

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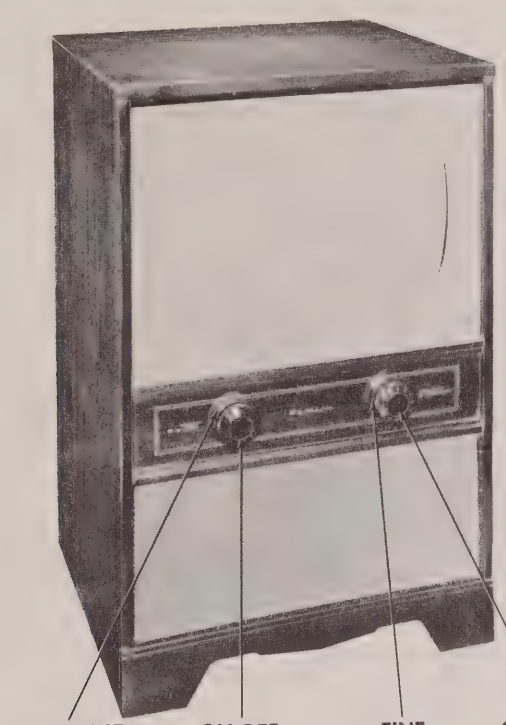

AIRLINE MODEL WG-5000A

TRADE NAME	Airline Models WG-5000A, WG-5000B, WG-5000C, WG-5000D, WG-5000E, WG-5000F, WG-5000G
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.43 Amp. @ 117 Volts AC
TUNING RANGE-	Channels 2 thru 13, Video IF 26.2MC, Sound IF 21.7MC (Intercarrier)

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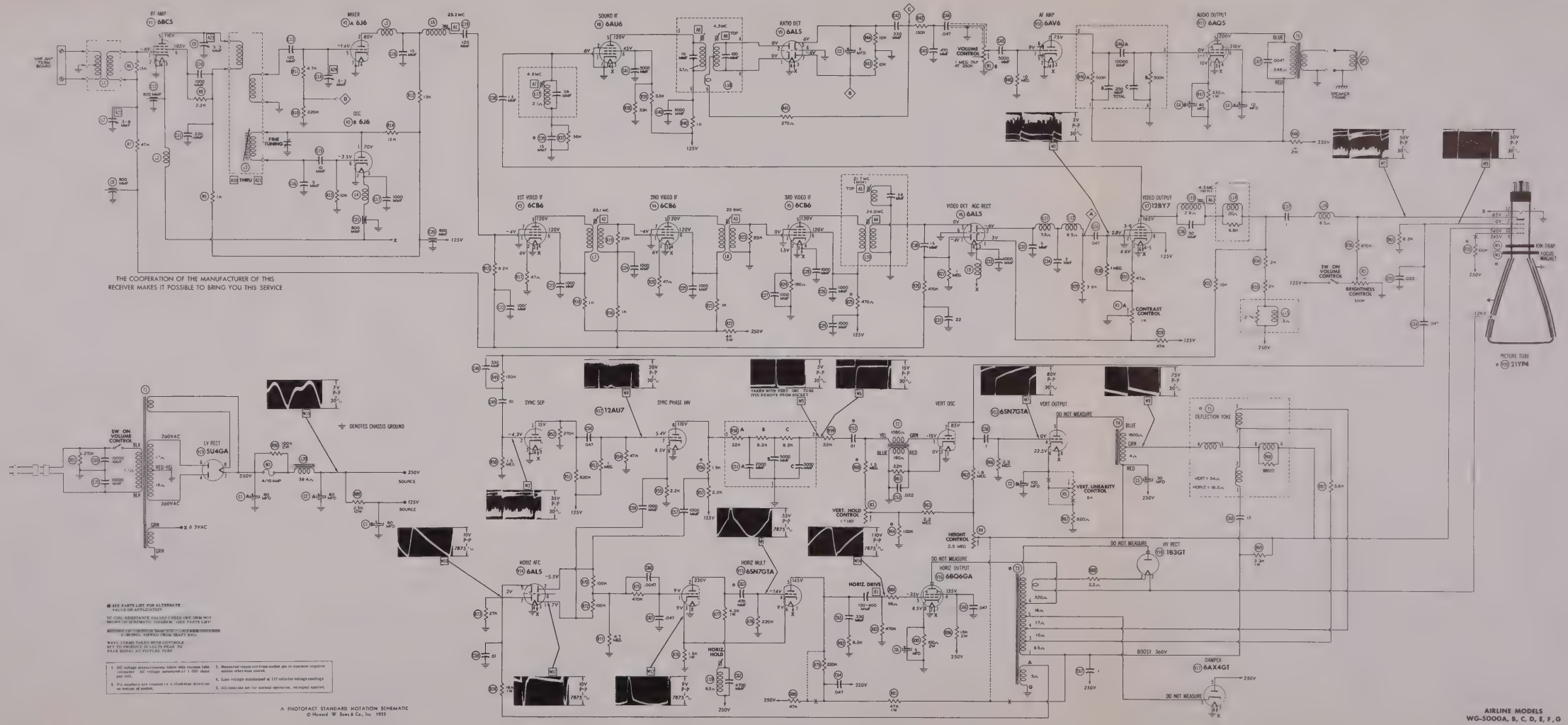
AIRLINE MODELS
WG-5000A, B, C, D, E, F, G


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RF AMP V1 6BC5
MIXER V2A 6J6
OSC V2B 6J6
SOUND IF V8 6AU6
RATIO DET V9 6AL5
AF AMP V10 6AV6
AUDIO OUTPUT V11 6AQ5
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO DET AGC RECT V6 6AL5
VIDEO OUTPUT V7 12BY7
SYNC SEP V13 12AU7
SYNC PHASE INV
VERT OSC
VERT OUTPUT V12 6SN7GTA
HORIZ AFC V16 6AL5
HORIZ MULT V15 6SN7GTA
HORIZ OUTPUT V10 6BQ6GA
HV RECT V18 1B3GT
DAMPER V17 6AX4GT
LV RECT V19 5U4GA
PICTURE TUBE V20 21YP4
DENOTES CHASSIS GROUND
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM - SEE PARTS LIST
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1 000 ohms per volt.
2. Pin numbers are counted in a clockwise direction as bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 voltsfor voltage readings
5. All controls set for normal operation, unsignal applied.
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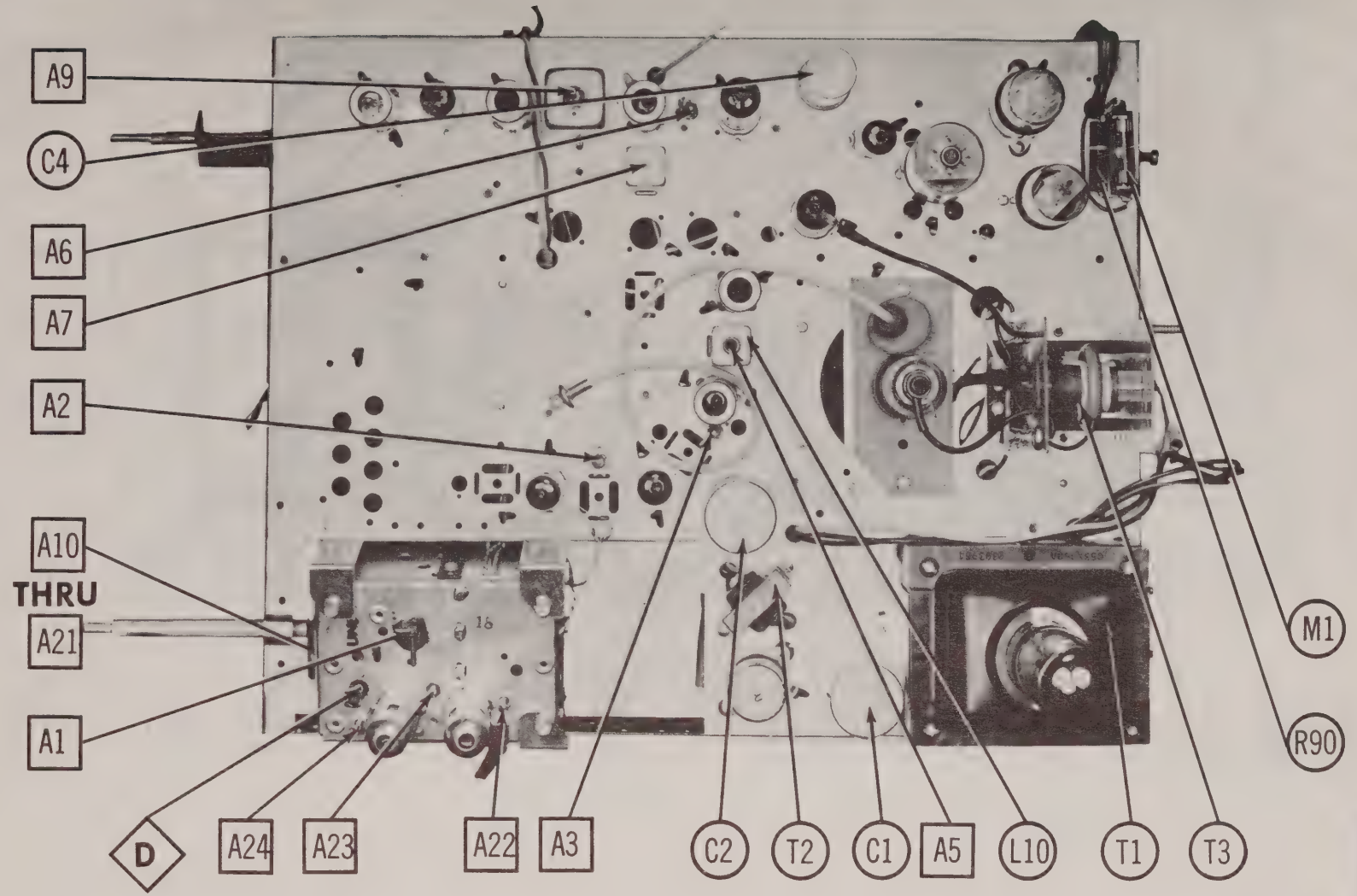
AIRLINE MODELS
WG-5000A, B, C, D, E, F, G



CHASSIS TOP VIEW

WG-5000A, B, C, D, E, F, G

AIRLINE MODELS

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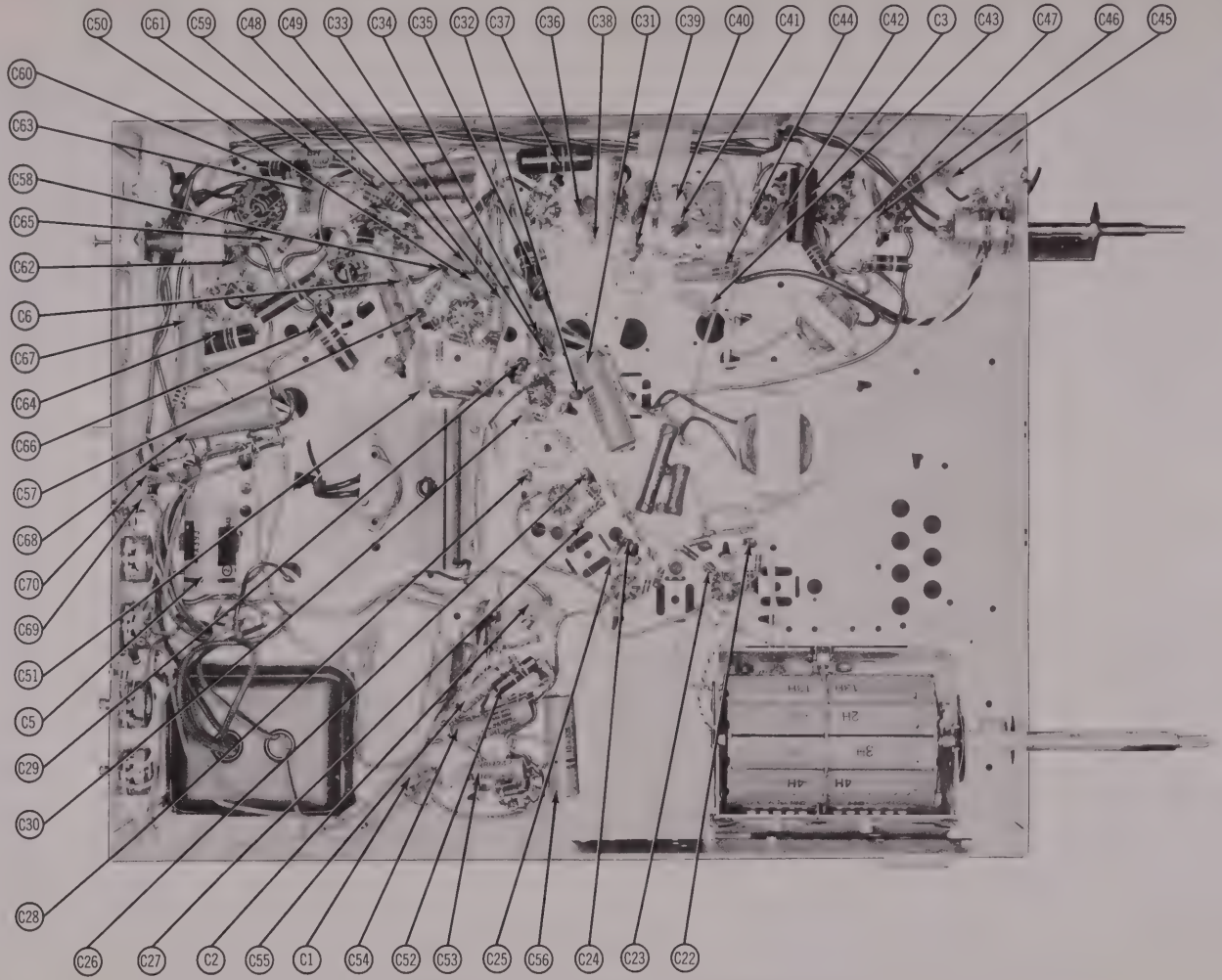
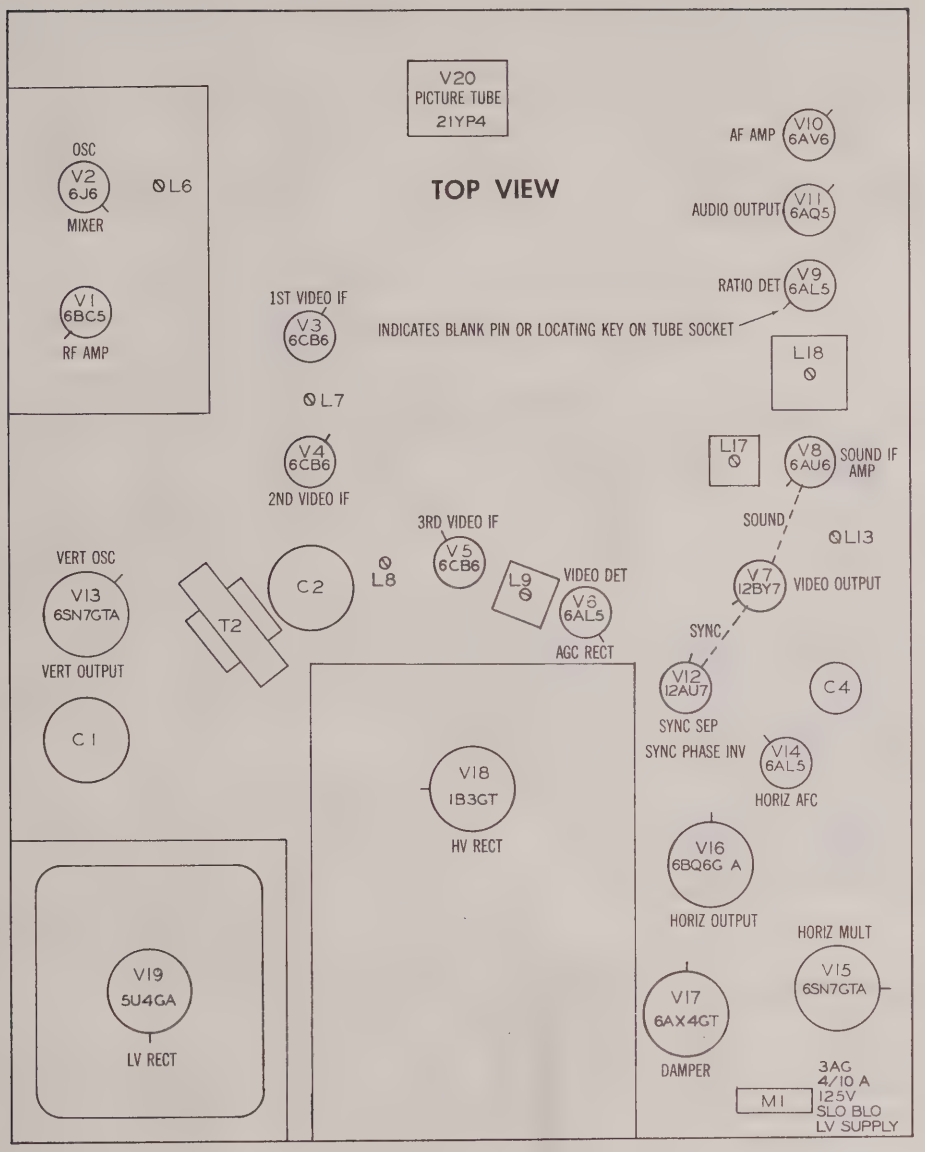


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V7
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V20
Has pic, no sound - V8, V9, V10, V11

SYNC FAILURE
No vert. sync - V12, V13
No horiz. sync - V12, V14, V15
No vert. or horiz. sync - V12

SWEEP FAILURE
No raster, has sound - V15, V16, V17, V18, V20
No vertical deflection - V13
Poor vert. linearity or foldover - V13
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17, V18, V19
Vert. off freq. - V12, V13
Horiz. off freq. - V12, V14, V15

PROPERTY OF

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal multivibrator tube (V15).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 4.5 volt bias supply to the ungrounded side of C31. Connect positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.2MC (Unmod)	Any	DC probe thru 22KΩ to point Ⓐ. Common to chassis.	A1	Attenuate signal generator output to produce no more than 2 volts on VTVM. Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	25.9MC	"	"	A3	"
4.	"	"	24.0MC	"	"	A4	"
5.	"	"	21.7MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.7MC 23.0MC 23.5MC 25.25MC 26.2MC	Any	Vert. Amp. thru 22KΩ to point Ⓐ. Low side to chassis.		Check for response similar to Fig. 1. If necessary, retouch A1 thru A4. A1 and A3 affect high frequency side of curve and placement of 26.2MC marker. A2 affects low frequency side and position of 23.0MC marker. Adjust A4 for MINIMUM tilt and proper position of 23.5MC marker.

4.5MC TRAP ALIGNMENT

Turn contrast control for maximum contrast.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	10KΩ Carbon Resistor	High side thru a 10KΩ resistor to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to pin 11 (cathode) of picture tube . Common to chassis.	A6	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.01MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point Ⓑ. Common to chassis.	A7, A8	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated asignal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.01MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. thru 22KΩ to point Ⓑ. Low side to chassis.	A7, A8	Disconnect stabilizing capacitor C3. Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
9.	"	"	"	"	"	Vert. Amp. thru 22KΩ to point Ⓒ. Low side to chassis.	A9	Reconnect stabilizing capacitor C3. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

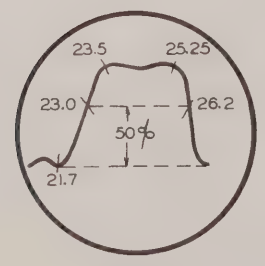


FIG. 1

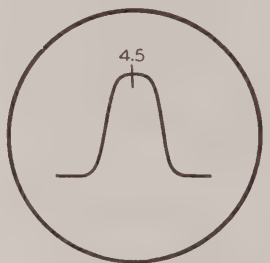


FIG. 2

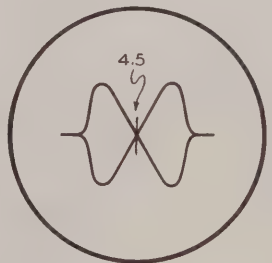


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace original 6J6 in its socket.
The oscillator adjustment screws are reached thru a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible the this hole as the channel switch is turned to each channel.
Leave bias connected as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 22KΩ to point (A). Low side to chassis.	A10	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to the ungrounded side of C31. Connect positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 22KΩ to point (D). Low side to chassis.	A22, A23, A24	Adjust for response curve similar to Fig. 5, with markers above 90%.
12.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 5. If markers fall below 70% on any channel make SLIGHT compromise adjustment of A22, A23 and A24 with channel switch set to that channel. Recheck all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

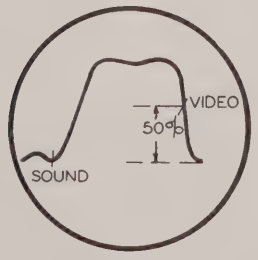


FIG. 4

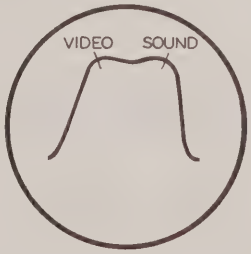
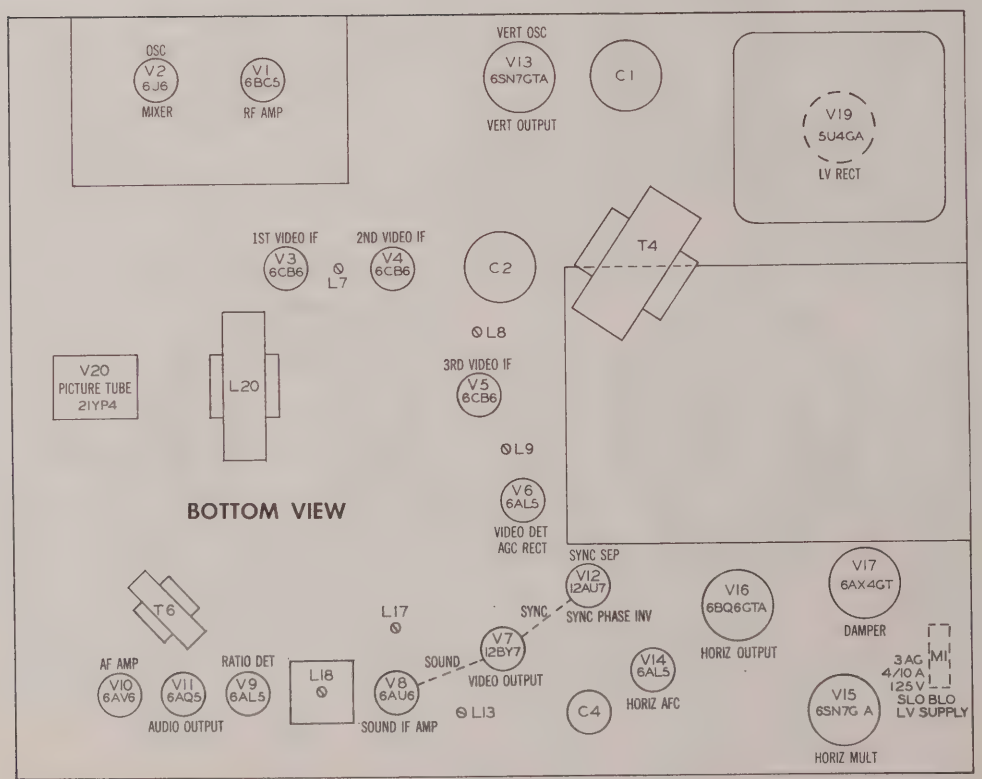


FIG. 5

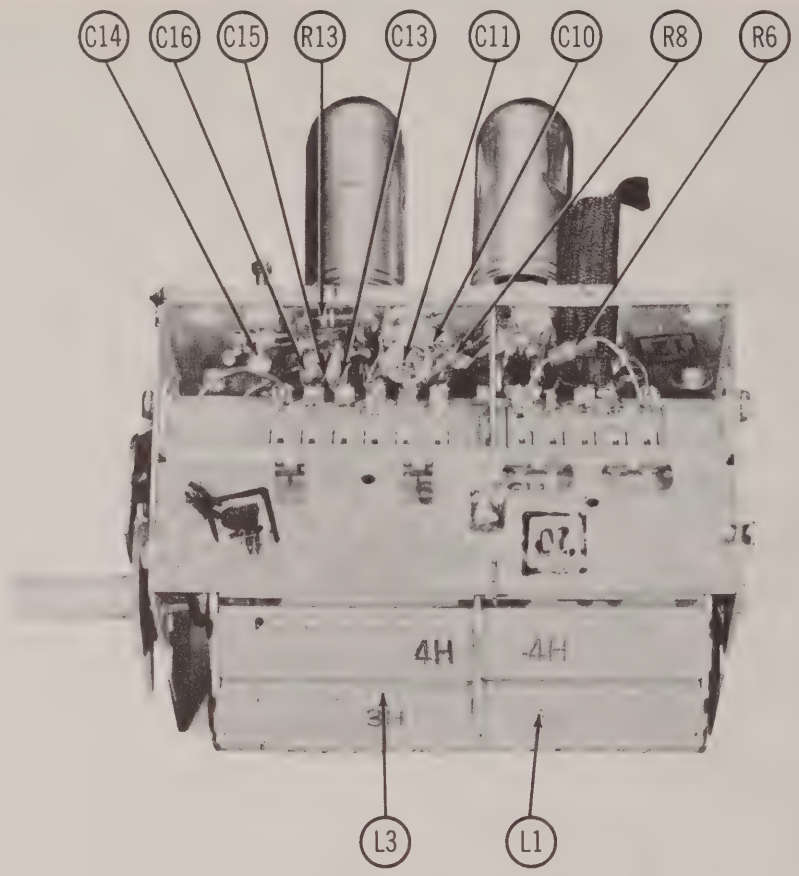
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1.5Meg	0Ω	.1Ω	0Ω	†3.5KΩ	†5.7KΩ	0Ω		
V 2	6J6	†18KΩ	†18KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6CB6	1.5Meg	47Ω	0Ω	.1Ω	†5KΩ	†5KΩ	0Ω		
V 4	6CB6	1.5Meg	47Ω	0Ω	.1Ω	†5KΩ	†5KΩ	0Ω		
V 5	6CB6	.2Ω	180Ω	0Ω	.1Ω	†3KΩ	†3KΩ	0Ω		
V 6	6AL5	1KΩ	3.9KΩ	.1Ω	0Ω	.2Ω	0Ω	1Meg		
V 7	12BY7	250Ω	1Meg	0Ω	.1Ω	.1Ω	0Ω	†4KΩ	†2.5KΩ	0Ω
V 8	6AU6	56KΩ	0Ω	.1Ω	0Ω	†3.5KΩ	†25KΩ	0Ω		
V 9	6AL5	INF	INF	.1Ω	0Ω	10KΩ	0Ω	10KΩ		
V 10	6AV6	10Meg	0Ω	.1Ω	0Ω	NC	NC	†500KΩ		
V 11	6AQ5	500KΩ	330Ω	0Ω	.1Ω	†1.5KΩ	†1KΩ	500KΩ		
V 12	12AU7	†230KΩ	1.5Meg	0Ω	0Ω	0Ω	†6.2KΩ	50KΩ	2.2KΩ	.1Ω
V 13	6SN7GTA	2.5Meg	▲3Meg	170Ω	2.2Meg	▲5KΩ	3KΩ	0Ω	.1Ω	
V 14	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	11KΩ	NC	11KΩ		
V 15	6SN7GTA	5Meg	†4.3KΩ	1.5KΩ	220KΩ	†270KΩ	1.5KΩ	.1Ω	0Ω	
V 16	6BQ6GA	NC	0Ω	TP	†15KΩ	470KΩ	TP	.1Ω	100Ω	TOP CAP ▲18Ω
V 17	6AX4GT	TP	NC	120KΩ	TP	†40Ω	TP	.1Ω	0Ω	
V 18	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲338Ω
V 19	5U4GA	INF	25KΩ	INF	17Ω	INF	16Ω	INF	25KΩ	
V 20	21YP4	0Ω	8.2KΩ	PIN 6 †100KΩ	PIN 10 ▲3.3KΩ	PIN 11 600KΩ	PIN 12 .1Ω			

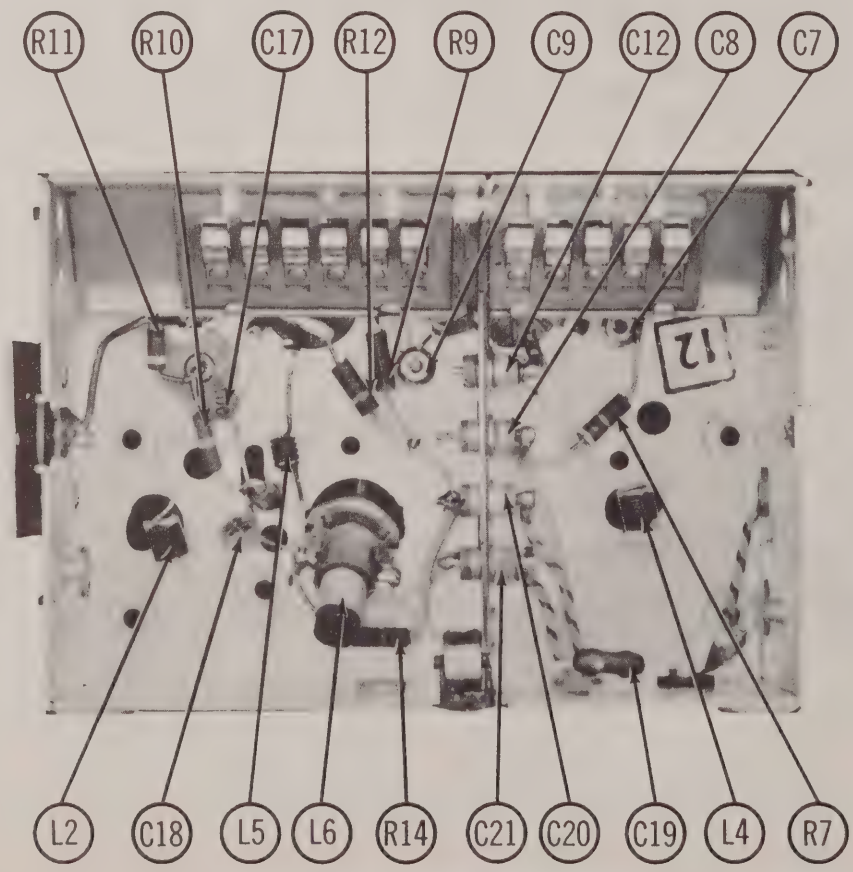
† MEASURED FROM PIN 2 OF V19
▲ MEASURED FROM PIN 3 OF V17
NC - NO CONNECTION
TP - TIE POINT



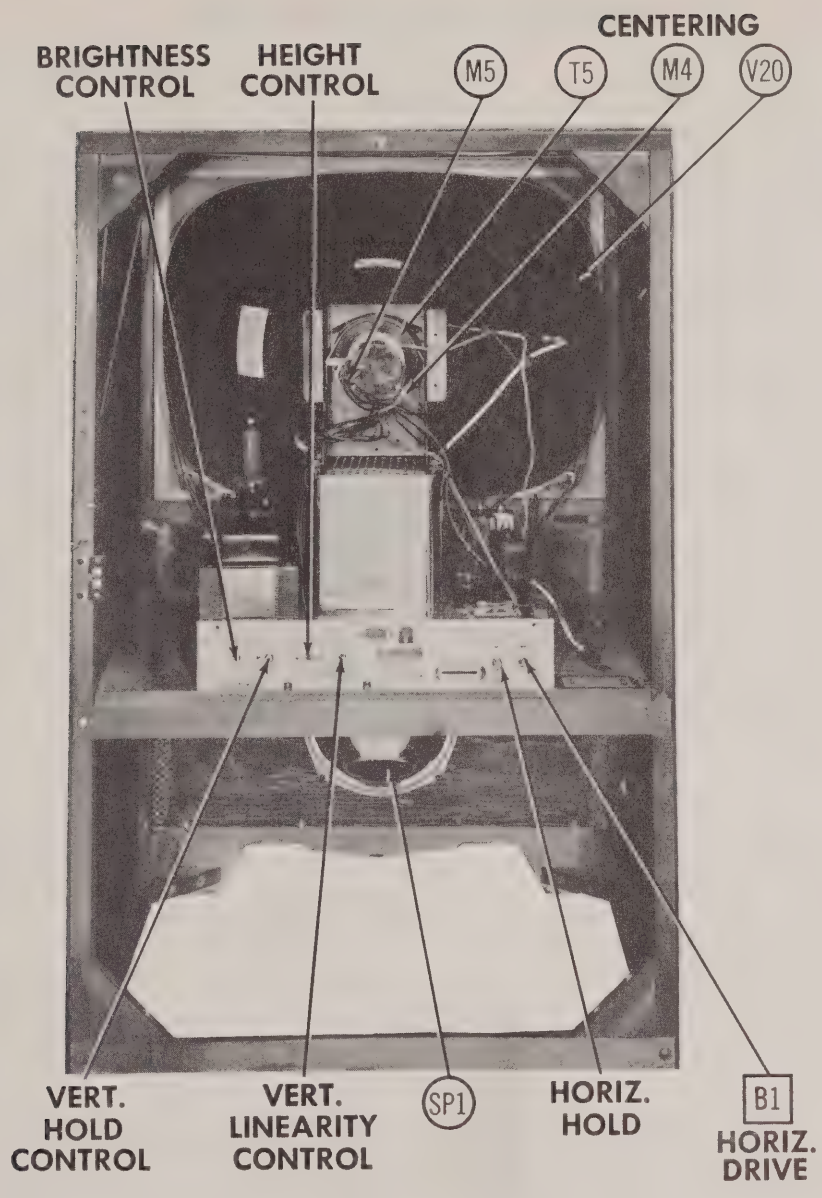
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal hold until the picture synchronizes horizontally. Switch off channel and back again; picture should pull into sync.

Adjust the horizontal drive trimmer (B1) clockwise until vertical white lines or foldover appears near left side of picture.

Adjust B1 counter clockwise until vertical white lines or foldover just disappears.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage."

INSUFFICIENT SWEEP

Check by substitution V16, V17 and V19. Check adjustment B1. Check T3, T5A, C65, C6, R86 and other associated components.

DRIVE LINES

Check by substitution V16 and V17. Check adjustment B1. Check R86, T3, T5A and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V16 and V17. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines."

PIE CRUST EFFECT

Check by substitution V15, V16 and V17. Check C61 for open. Check C60, C62, R77, L19 and other associated components.

XMAS TREE EFFECT

Check by substitution V15, V16 and V17. Check T3 and T5 for internal arcing. Check L19, C62, C63, C59, R76, R79, R77 and other associated components.

VERTICAL

LOSS OF SWEEP

Substitute V13. Check waveform W7.

If Satisfactory	If Unsatisfactory
Check T4, T5B, R69, R67, C2B and other associated components.	Check C56, C53, R61, R62, R4, T2 and other associated components.

INSUFFICIENT SWEEP

Substitute V13. Check height and vertical linearity controls for proper operation. Check R62, T4 and other associated components.

COMPRESSED AT BOTTOM

Substitute V13. Check R62, R4, R69, C56 and other associated components.

COMPRESSED AT TOP

Substitute V13. Check R67, R5, C2B, C56, T4 and other associated components.

FOLDS

Substitute V13. Check C54, C55, R65, T4, T5B and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Substitute V12. Check C48, C49, C50, R51, R57, R56, R53 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V13. Check vertical integrator network. Check C52, C53, T2, R61, R60, R3 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Check by substitution V14 and V15. Check C57, C58, C60, C61, L19, R76 and other associated components.

HORIZONTAL BENDING

Check by substitution V12, V14 and V15. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Substitute V7. Check C35, C37, R33, R34, L16 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A6. Check video IF Alignment.

POOR CONTRAST

Substitute V7. Check contrast control. Check L14, L15, R31, C35, C37 and other associated components.

NEGATIVE PICTURE

Substitute V7. Check picture tube. Check C35, C37 and other associated components.

SMEAR

Substitute V7. Check L11, L12, L14, L15, C35, C37 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5, V6 and V7 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C44, C45, C46, C47, C4A, R46, R47, R48, T6, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A9 for mimimum buzz. If still unsatisfactory, check audio IF Alignment.

DISTORTED

Follow procedure outlined under "Weak or no Sound."

POWER

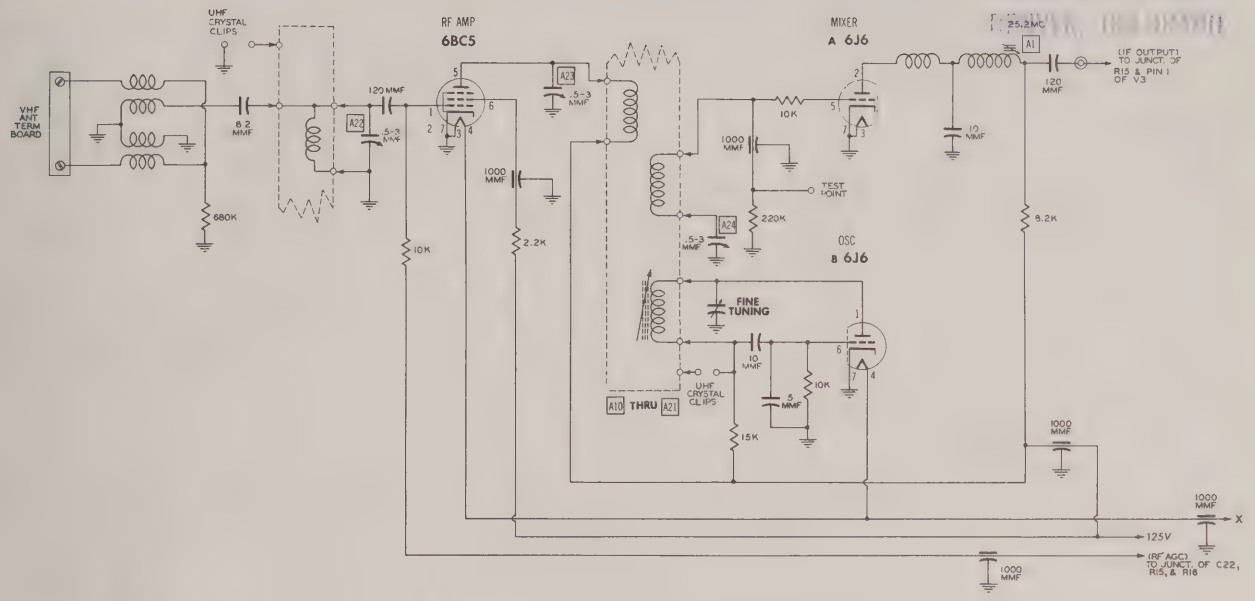
DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, substitute V19. Check B+ filter and decoupling network.

SMALL AND/ON DIM PICTURE

Substitute V19. Check B+ filter and decoupling network.

PROPERTY OF
L. T. BLANCHIP



VHF TUNER 25A1126 USED WITH MODELS WG-5000B AND WG-5000C

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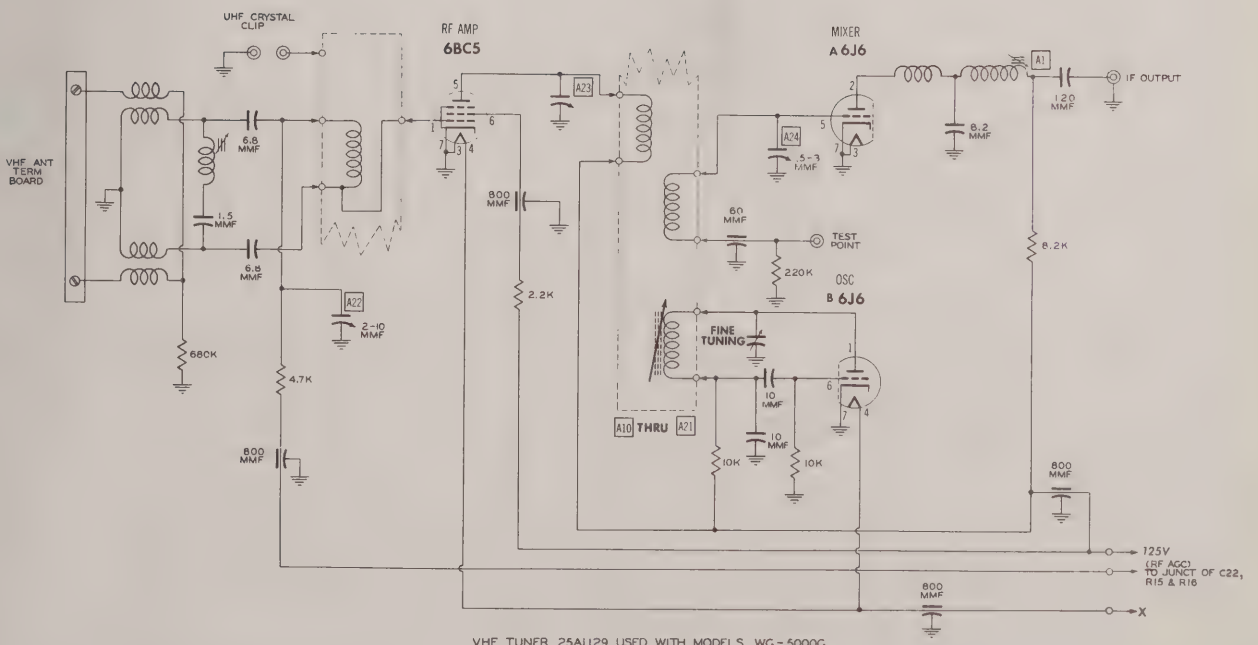
ALTERNATE TUNER SCHEMATIC



VHF TUNER 25A1129 USED WITH MODELS WG-5000G

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ALTERNATE TUNER SCHEMATIC

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No	USE	REPLACEMENT DATA: AIR LINE PART No.	STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	5BC5	7BD	
V2	Mixer-Osc	526	626	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp	6CB6	6CB6	7CM	
V6	Video Det.- AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Output	1B3T1	1B3T	9BF	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Det.	6AL5	6AL5	6BT	
V10	AF Amplifier	6AV6	6AV6	7AF	
V11	Audio Output	6AQ5	6AQ5	7BZ	
V12	Sync Sep.- Sync Phase Inv.	12AU7	12AU7	9A	
V13	Vert. Osc. - Vert. Output	6SN7GTA	6SN7GTA	8BD	
V14	Horiz. AFC	6AL5	6AL5	6BT	
V15	Horiz. Mult.	6SN7GTA	6SN7GTA	8BD	
V16	Horiz. Output	6DQ6GA	6DQ6GA	6AM	
V17	Damper	5AX4GT	5AX4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	3C	
V19	LV Rectifier	5U4GA	5U4GA	5T	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: AIR LINE PART No	CBS PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	WESTINGHOUSE PART No	RETMA BASE TYPE	NOTES
V20	21VP4	21VP4	21VP4	21VP4A	21VP4	12L	① Aluminized
		21VP4A ①	21VP4A ①	21VP4A ①	21VP4A ①	12L	② Circuit changes necessary
	21AVP4					12N	③ Silver screen
	21AWP4	21AWP4				12M	
				21AVP4 ②			

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	AIR LINE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C1A	+80 -20	300	45X397			FP329.4	TM-804020-450	T-180	
B	+80 -20	300							
C2A	+80 -20	300	45X395			FP329.5	TM-3087	D-323	
B	±100	50							
C3	5	25				TC30	TD-5-25	MMT-0505	
C4A	+80 -20	300	45X410			FP329.3	TM-3086	T-595	
B	+40 -20	50							
C5	30	400				TC27	TD-30-450	FM-4530	
C6	5	25				TC30	TD-5-25	MMT-0505	
C7	5-8		31A-079	839-10					
C8	8-30		19D-153						
C9	.5-3		31A-056	839-3	3115-01-GR5	CT565A			
C10	1000		19LBX1022	DD-102	801-001	DC-521			
C11	220			DD-221	511-331	DC-5323			
C12	800		19D-153						
C13	120		19LADX12K	DD-121	511-121	UC-5313			
C14	5-8		31A-056	839-3	3115-01-GR5	CT565A			
C15	10		19L10C100K	TCZ-10	MPGK-100	ZT-541			
C16	5		19LBIAA050C						
C17	1000		19LBX1022	DD-102	801-001	DC-521			
C18	10		19L10C100K	TCZ-10	MPGK-100	ZT-541			
C19	120		19LBDX12K	D6-121	GP2K-121	UC-5312			
C20	800		19D-153						
C21	800		19D-153						
C22	1000			DD-102	801-001	DC-521		K-1210	
C23	1000			DD-102	801-001	DC-521		K-1210	
C24	1000			DD-102	801-001	DC-521		K-1210	
C25	1000			DD-102	801-001	DC-521		K-1210	
C26	1000			DD-102	801-001	DC-521		K-1210	
C27	1000			DD-102	801-001	DC-521		K-1210	
C28	1000			DD-102	801-001	DC-521		K-1210	
C29	1000			DD-102	801-001	DC-521		K-1210	
C30	15			D6-150	GP2K-150	UC-5415		K-1415	
C31	.33	200				TP2033	IMP4-P33	3304123	
C32	1000			DD-102	801-001	DC-521		K-1210	
C33	5		47X562	TCZ-4R7	NPGA-050	Z7-555		KM-1550	
C34	5		47X562	TCZ-4R7	NPGA-050	Z7-555		KM-1550	
C35	.047	300	RCP10M4733M	DF-5U		PT4147	IMP2-S47	3302147	
C36	30		47X569	TCZ-30	NPGA-300	PT401	IMP4-P1	3304101	
C37	.1	400		DF-104					
C38	1.5		47X594	TCZ-1R5	NPGA-1R5	Z7-5515		K-1415	Note 1
C39	15			D6-150	GP2K-150	UC-5415		K-1415	
C40	5000			DD-502	5U-005	DC-525		C-1250	
C41	5000			DD-502	5U-005	DC-525		C-1250	
C42	330	500	47X570	D6-331	GP2K-331	UC-5333		K-1333	
C43	470	500	47X525	D6-471	GP2K-471	MC245		K-1347	
C44	.047	300	RCP10M4733M	DF-502		PT4147	IMP2-S47	3302147	
C45	5000			DD-502	5U-005	DC-525	IMP8-D5	C-1250	
C45A	10000								
B	250		†76X5	†PC-80	†1404-01				
C									
C47	.0047	600		D6-472	GP2-333-472	PT6347	IMP8-D47	3306147	
C48	330	500	47X570	D6-331	GP2K-331	UC-5333		K-1333	
C49	.01	400		D6-103	GP2-333-103	PT4ll	IMP4-S1	3304ll	
C50	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C51A	2000					DC-522	IMP8-D2	C-1220	
B	5000		†76X7	†PC-100	†1405-01	DC-525	IMP8-D5	C-1250	
C	5000					DC-525	IMP8-D5	C-1250	
C52	.01	400		D6-103	GP2-333-103	PT4ll	IMP4-S1	3304ll	
C53	.033	600		DF-303	5T-03	PT4133	IMP4-S33	3304133	Note 2
C54	.047	600	RCP10M4733M	DF-503		PT6347	IMP6-S47	3306147	

CAPACITORS (cont)

ITEM No.	RATING: CAP.	VOLT	AIR LINE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C55	.022	200		DF-303	5T-03	PT4122	IMP4-S22	3304122	
C56	.1	600		DF-104		PT601	IMP6-P1	330601	
C57	1000			DD-102	801-001	DC-521	IMP6-D1	K-1210	
C58	1000			DD-102	801-001	DC-521	IMP4-D1	K-1210	
C59	.01	400		D6-103	GP2-333-103	PT4ll	IMP4-S1	3304ll	
C60	.0047	600	RCP10M4473M	DF-5U3		PT6247	IMP6-D47	3306247	
C61	.047	300		DF-503		PT4147	IMP2-S47	3302147	
C62	4700	500	47X543			MCE465		CR-1247	
C63	470	500				MCE246		KR-1247	Note 3
C64	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	3304147	
C65	330	500	47X570	D6-331	511-331			KR-1333	
C66	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C67	.1	400		DF-104		PT401	IMP4-P1	330401	
C68	.15	400	RCP10M4154M			PT4015	IMP4-P15	3304015	
C69	10000			DD-103					
C70	10000			DD-103					

Note 1. Some versions use 100MMF in this application.
Note 2. Early production versions use 4700MMF in this application.
Note 3. Some versions use 450MMF in this application.
† Items C45A, C45B, C48C, R46A, R46B are combined in one unit.
* Items C51A, C51B, C51C, R58A, R58B and R58C are combined in one unit.

CONTROLS

ITEM No	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: AIR LINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	BT6C21	*QJ-638	RTV-502	F1-4	UP35L	Contrast - Panel
B	1Meg	½				B3-59	UR35-Y254	Volume - Tapped @ 250KΩ-rear
C	Switch					KB-3	UB-27	Attach to R1B
R2A	500KΩ	½	B40X305	QU-133	A47-500K-B	AB-59	SU-50	Brightness
B	Shaft		Not Req.	Not Req.	FKB-1/4	AK-1	Not Req.	Attach to R2A
R3A	1.5Meg	½	B40X305	QU-138	A47-1.5Meg-B	AB-742	U-155	Vert. Hold
B	Shaft		Not Req.	Not Req.	FKB-1/4	AK-1	Not Req.	Attach to R3A
R4A	2.5Meg	½	B40X309A	QU-239	A47-2.5Meg-B	AB-83	SU-585	Height
B	Shaft		Not Req.	RQ	FKS-1/4	AK-4	Not Req.	Attach to R4A
R5A	200KΩ	½	B40X375	QU-116	A47-10K-B	AB-14	SU-20	Vert. Linearity
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R5A

* CONCENTRIKIT EQUIVALENT: KIT K-4, BASE ELEMENTS & SHAFTS: B11-108 & P6-218 (Panel)
B13-157X & R16-313 (Rear)
76-2 SWITCH

RESISTORS

ITEM No.	RATING: OHMS	WATT	AIR LINE PART No.	IRC PART No.	NOTES
R6	15KΩ	½	12TAE153M	BTS-15K	
R7	47KΩ	½	12TAE473M	BTS-47K	
R8	2200Ω	½	12TAE222M	BTS-2200	
R9	1000Ω	½	12TAE102M	BTS-1000	
R10	220KΩ	½	12TAE224M	BTS-220K	
R11	47000Ω	½	12TAE473K	BTS-47K	
R12	15KΩ	½	12TAE153M	BTS-15K	
R13	10KΩ	½	12TAE103K	BTS-10K	
R14	15KΩ	½	12TAE153M	BTS-15K	
R15	82000 5%	½		BTS-8200 5%	
R16	10000	½		BTS-1000	
R17	470 5%	½		BTS-47 5%	
R18	10000	½		BTS-1000	
R19	22KΩ 5%	½		BTS-22K 5%	
R20	470 5%	½		BTS-47 5%	
R21	10000	½		BTS-1000	
R22	4000Ω	5	43X388	1 3/4A-4000	
R23	22KΩ 5%	½		BTS-22K 5%	
R24	8200Ω	½		BTS-8200	
R25	470Ω	½		BTS-470	Note 1
R26	470KΩ	½		BTS-470K	
R27	1Meg	½		BTS-1Meg	
R28	47KΩ	½		BTS-47K	
R29	39000 5%	½		BTS-3900 5%	
R30	1Meg	½		BTS-1Meg	
R31	470	½		BTS-47	
R32	10KΩ	½		BTS-10K	
R33	2000Ω 5%	½	DB320S	BTS-2000 5%	
R34	2000Ω 5%	½	DB320S	BTS-2000 5%	
R35	100KΩ	½		BTS-100K	Note 5
R36	470KΩ	½		BTS-470K	
R37	68KΩ	½		BTS-68K	
R38	33KΩ	½		BTS-33K	
R39	33KΩ	½		BTS-33K	
R40	1000Ω	½		BTS-1000	
R41	270Ω	½		BTS-270	
R42	150KΩ	½		BTS-150K	
R43	10KΩ 5%	½		BTS-10K 5%	
R44	10KΩ 5%	½		BTS-10K 5%	
R45	10Meg	½		BTS-10Meg	
R46A	500KΩ	½	† 76X5	BTS-470K	
B	500KΩ	½		BTS-470K	
R47	3300	1		BTA-330	
R48	1000Ω	2		BTS-1000	

ITEM No.	RATING: OHMS	WATT	AIR LINE PART No.	IRC PART No.	NOTES
R49	150KΩ	½		BTS-150K	
R50	1.5Meg	½		BTS-1.5Meg	
R51	820KΩ	½		BTS-820K	
R52	270KΩ	½		BTS-270K	
R53	1Meg	½		BTS-1Meg	
R54	47KΩ	½		BTS-47K	
R55	22000 5%	½		BTS-2200 5%	
R56	10000 5%	½		BTS-1000 5%	Note 2
R57	22000 5%	½		BTS-2200 5%	
R58A	22KΩ			BTS-22K	
B	8200Ω			BTS-8200	
C	8200Ω			BTS-8200	
R59	22KΩ 5%	½		BTS-22K 5%	
R60	1.5Meg	½		BTS-1.5Meg	Note 3
R61	22KΩ	½		BTS-22K	
R62	1.5Meg	½		BTS-1.5Meg	
R63	2.2Meg	½		BTS-2.2Meg	
R64	120KΩ	½		BTS-120K	
R65	8200Ω	½		BTS-8200	
R66	2.2Meg	½		BTS-2.2Meg	
R67	820Ω	½		BTS-820	
R68	560Ω	½		BTS-560	
R69	3300Ω	½		BTA-3300	
R70	100KΩ	½		BTS-100K	
R71	4.7Meg	½		BTS-4.7Meg	
R72	100KΩ	½		BTS-100K	
R73	27KΩ	½		BTS-27K	
R74	18KΩ	1		BTA-18K	
R75	470KΩ	½		BTS-470K	
R76	15000 5%	½		BTS-1500 5%	
R77	43000 5%	½	CS1433	BTA-4300 5%	
R78	220KΩ	½		BTS-220K	
R79	220KΩ	½		BTS-220K	
R80	47KΩ	½		BTS-47K	
R81	47KΩ 5%	½		BTA-47K 5%	
R82	8200Ω	½		BTS-8200	
R83	470KΩ	½		BTS-470K	
R84	68Ω	½		BTS-68	
R85	100Ω	2			
R86	15KΩ	2		BTS-15K	
R87	3600Ω	2		BTS-3600	
R88	2.2Ω	1	43X322	1 3/4A-2500	
R89	2500Ω	10		BTS-2500	
R90	100KΩ	2		BTS-100K	
R91	270KΩ	½		BTS-270K	

† Items R46A, R46B, C48A, C48B and C48C are combined in one unit.
* Items R58A, R58B, R58C, C51A, C51B, C51C are combined in one unit.
Note 1. Early production versions use a 1500Ω resistor in this application.
Note 2. Early production versions use a 3300Ω resistor in this application.
Note 3. Early production versions use a 2.2Meg resistor in this application.
Note 4. Early production versions use a 330KΩ resistor in this application.
Note 5. Not used in models using a 21AWP4 picture tube.

TRANSFORMER (POWER)

ITEM No	RATING: PRI	SEC 1	SEC 2	REPLACEMENT DATA: AIR LINE PART No.	Hallderson PART No	Merit PART No	RCA TYPE No.	Stancor PART No	Thordarson PART No	Triad PART No
T1	117VAC	520VCT	5VAC	53X340A		P-3837				R46B8
	@1.43A	.240ADC	@ 3A							
	SEC 3	SEC 4	SEC 5							
	6.3VAC @ 6.4A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: AIR LINE PART No	Hallderson PART No	Merit PART No	RCA PART No	Stancor TYPE No	Thordarson PART No	Triad PART No
T2	Vert. Osc. Trans.	54X10	B6702	A-3003	20971 ①	V40S	A-8125	26A03	A-97X
T3	Horiz. Output Trans.	53X342 ②	FB41l & RF800 *①	HVO-9 & MWC-1 * ①	23271 *①	X110 *	A-8252 & WC-5 *①	FLY-37 *	D-35 *①
		53X347 ③	FB41l & RF800 *①	HVO-9 & MWC-1 * ①	23271 *①	X110 *	A-8252 & WC-5 *①	FLY-37 *	D-35 *①
T4	Vert. Output Trans.	51X268	X1806 ①	A-3039 ①	22571 ①	V312 ①	A-8141 ①	26B54 ①	A-104X ①
T5A	Yoke-Horiz. (13.5MH)	6A2334-3 ④	DF802 ①	MDF-72 ①	21DD3 ①⑧	YT0F14 ①	DY-8A ①	Y-4 ①⑧	Y-15 ①⑧
B	Vert. (66MH)	6A2334-4 ⑤ 2A435 ⑥	DF802 ①	MDF-72 ①	21DD3 ①	YT0F14 ①	DY-8A ①	Y-4 ①	Y-15 ①

① Drill new mounting hole(s).
② Used in models WG3000A and WG5000B.
③ Used in models WG5000C, WG5000E, WG5000F and WG5000G
④ Used in models WG5000A, WG5000B, WG5000C, WG5000E, WG5000F and WG5000G
⑤ Used in model WG5000D.
⑥ Includes resistor R88.
⑦ Use original rear cover and centering device.
⑧ Use original yoke damping network.
⑨ Yoke rear cover and centering device. Used with 6A2334-3 yoke only

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Hallderson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Rem Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	6	9	9	10	13	9	13	10
	5	8	8	8	Jumper 10 & 11	Jumper 7 and 8	Jumper 10 & 11	8
	4	5	5	6	6	5	6	6
	3	See Note ⑩	See Note ⑩	See Note ⑩	5 or 4	See Note ⑩	5 or 4	See Note ⑩
	1	1	1	3	1 or 2	1	1 or 2	3
	A	Term. #3 of RF800	Orange Term. of MWC-1		9	Orange Term. of WC-5	9	1
	G	Term. #4 of RF800	Black Term. of MWC-1	2	8	Black Term. of WC-5	8	2
Connect Width Coil Across		Term. #1 & #2 of RF800 across 3 & 1	Red & blue terms. of MWC-1 across 3 & 1			Red & blue terms. of WC-5 across 3 & 1		
Special Notes		⑩ ⑪	⑩ ⑪	⑩		⑩ ⑪	⑩ ⑭	⑭

⑩ Connect a 47MMF or 56MMF capacitor from open end of R87 to terminal #3 of yoke (red lead).
⑪ If the picture is out of phase, reverse width coil primary or secondary.
⑫ Jumper terminals #9 and "7".

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI	SEC	REPLACEMENT DATA: AIR LINE PART No	Hallderson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T6	4.75KΩ	3.7Ω	51X167A	ZU07	A-3026	A-3877	24S51	S-6X	

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: AIR LINE PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3.7Ω	12A522	8A21	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	SEC.	REPLACEMENT DATA: AIR LINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1A	Ant. Coil	0Ω CT	0Ω	9A2337-2				Channel 2
B	Ant. Coil	0Ω CT	0Ω	9A2337-3				Channel 3
C	Ant. Coil	0Ω CT	0Ω	9A2337-4				Channel 4
D	Ant. Coil	0Ω CT	0Ω	9A2337-5				Channel 5
E	Ant. Coil	0Ω CT	0Ω	9A2337-6				Channel 6
F	Ant. Coil	0Ω CT	0Ω	9A2337-7				Channel 7
G	Ant. Coil	0Ω CT	0Ω	9A2337-8				Channel 8
H	Ant. Coil	0Ω CT	0Ω	9A2337-9				Channel 9
I	Ant. Coil	0Ω CT	0Ω	9A2337-10				Channel 10
J	Ant. Coil	0Ω CT	0Ω	9A2337-11				Channel 11
K	Ant. Coil	0Ω CT	0Ω	9A2337-12				Channel 12
L	Ant. Coil	0Ω CT	0Ω	9A2337-13				Channel 13
L2	Fil. Choke	0Ω		34A-545				

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L3A	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-2				Channel 2
B	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-3				Channel 3
C	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-4				Channel 4
D	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-5				Channel 5
E	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-6				Channel 6
F	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-7				Channel 7
G	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-8				Channel 8
H	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-9				Channel 9
I	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-10				Channel 10
J	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-11				Channel 11
K	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-12				Channel 12
L	RF, Mixer Grid & Osc. Coils	0Ω		9A2338-13				Channel 13
L4	Fil. Choke	0Ω		34A-575				
L5	RF Coil	0Ω		31B638-1				
L6	1st. Video IF	.9Ω		31A-078				
L7	2nd. Video IF	.2Ω	.2Ω	9A2230	17-1063		6249	
L8	3rd. Video IF	.2Ω	.2Ω	9A2230	17-1064		6250	
L9	Fil. Choke	0Ω		9A2033	19-3001	TV-189	4602	1 Microhenry
L10	4th. Video IF	.2Ω	.2Ω	9A2345				Includes 21.7MC trap
L11	Series Peaking Coil	7.5Ω		36A30	19-3075		6173	60 Microhenries
L12	Series Peaking Coil	9.5Ω		36A1	19-3100	TV-181	6177	100 Microhenries
L13	4.5MC Trap	2.9Ω		9A2336	20-1004	TV-151	1469	
L14	Series Peaking Coil	20Ω		36A28	19-3300 *	TV-190 *	6155 *	350 Microhenries, wound on 6.8KΩ resistor
L15	Shunt Peaking Coil	13Ω		36A29	19-4201 ■	TV-184 ■	6154 ■	190 Microhenries, wound on 2.7KΩ resistor
L16	Series Peaking Coil	9.5Ω		36A1	19-3100	TV-181	6177	100 Microhenries
L17	Sound IF	2.1Ω		9A2201	17-3495 ▲	TV-113 ▲	1470A	
L18	Ratio Det.	3.7Ω	.6ΩCT	9A2295	17-1033	TV-110	1468	Tertiary winding -.5Ω
L19	Horiz. Osc.	63Ω		9A2273	19-1576	TV-163	6210	

* Parallel with 6.8KΩ resistor.
■ Parallel with 2.7KΩ resistor.
▲ Use one winding only.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L20	.240ADC	39.4Ω	1 HY	52X95	C5037 ①	C-2996 ①	C-2326 ①	26C44 ①	C-23X ①

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA AIRLINE PART No. FUSE	AIRLINE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG S/B	4/10A 125V	16X147-3	16X146	313.400 (3AG S/B-4/10A)	357001	MDL 4/10	4405

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M2	Tuner	25A1120	VHF-Models WG-5000A, WG-5000D, WG-5000E
	Tuner	25A1126	VHF - Models WG-5000B, WG-5000C, WG-5000F
	Tuner	25A1129	VHF - Model WG-5000G
M3	Focus Magnet	2A438-3	Includes centering device - Model WG-5000D
M4	Centering Device	2A435	Includes yoke cover - Model WG-5000A, WG-5000B, WG-5000C, WG-5000E, WG-5000F, WG-5000G
M5	Ion Trap	2A421	
B1	Trimmer Cap.	17A269	Horiz. Drive (120-400MMF)
	Knob	10A820-2	Fine tuning - Beige
	Knob	10A840-2	Contrast - Beige
	Knob	10A820-1	Fine tuning - Maroon
	Knob	10A840-1	Contrast - Maroon
	Knob	10A812-1	Channel Selector - Maroon
	Knob		On-off-volume - Maroon
	Safety Glass	17X181	Models WG-5000A, WG-5000B
	Safety Glass	17X188	Models WG-5000C, WG-5000D, WG-5000E, WG-5000F, WG-5000 G
	Mask	4X1230-1	Models WG-5000A, WG-5000B
	Mask	4X1241-3	Models WG-5000C, WG-5000D, WG-5000E, WG-5000F, WG-5000G

TROUBLE SHOOTING AIDS (cont)

L. F. [illegible]
[illegible] ST.
DENVER, COLORADO

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V15, V16, V17 and V18. Check waveform W14.

If Satisfactory	If Unsatisfactory
Check T3, T5A, C67, C68, C66, R85, R86 and other associated components.	Check L19, C62, C63, C65, R79, R81, R80, R77 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V16, V17 and V19. Check R86, R81, T3 and other associated components.

BLOOMING

Check by substitution V16, V17, V18 and V19. Check adjustment B1. Check R85, R86 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video."

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or no Sound."

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V7. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set."

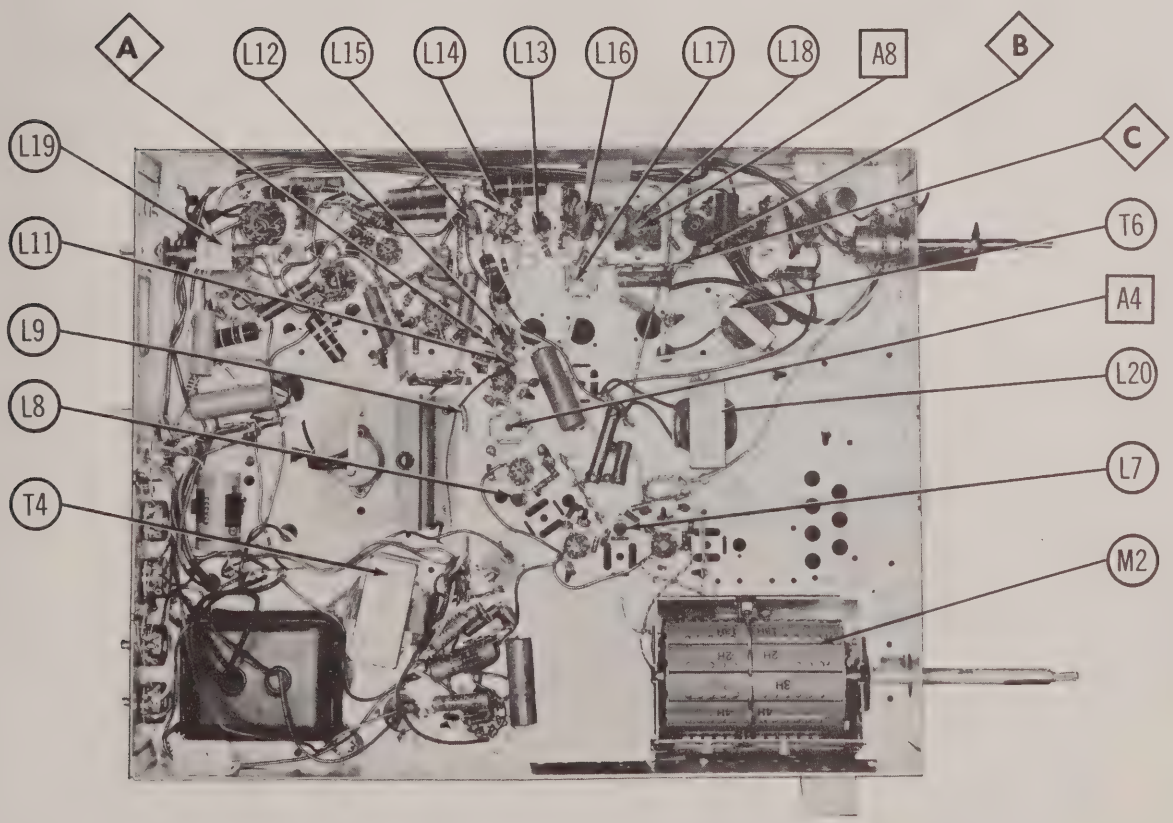
KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the right of the channel selector shaft.

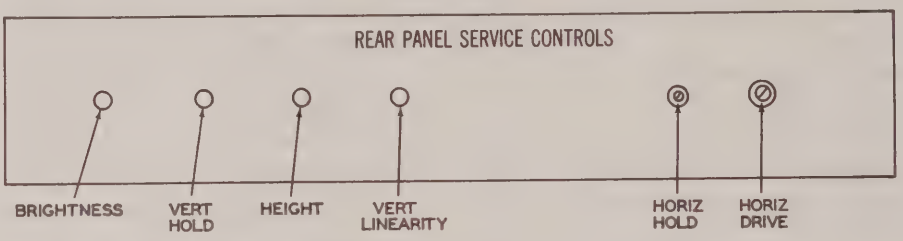
PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass, remove 5 wood screws holding plastic strip at the top of the safety glass. Remove plastic strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of the chassis. Adjust the horizontal hold until picture falls into horizontal sync.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L18). (See tube placement chart).

FUSES

One fuse is used for LV power supply protection. (For location see tube placement chart).

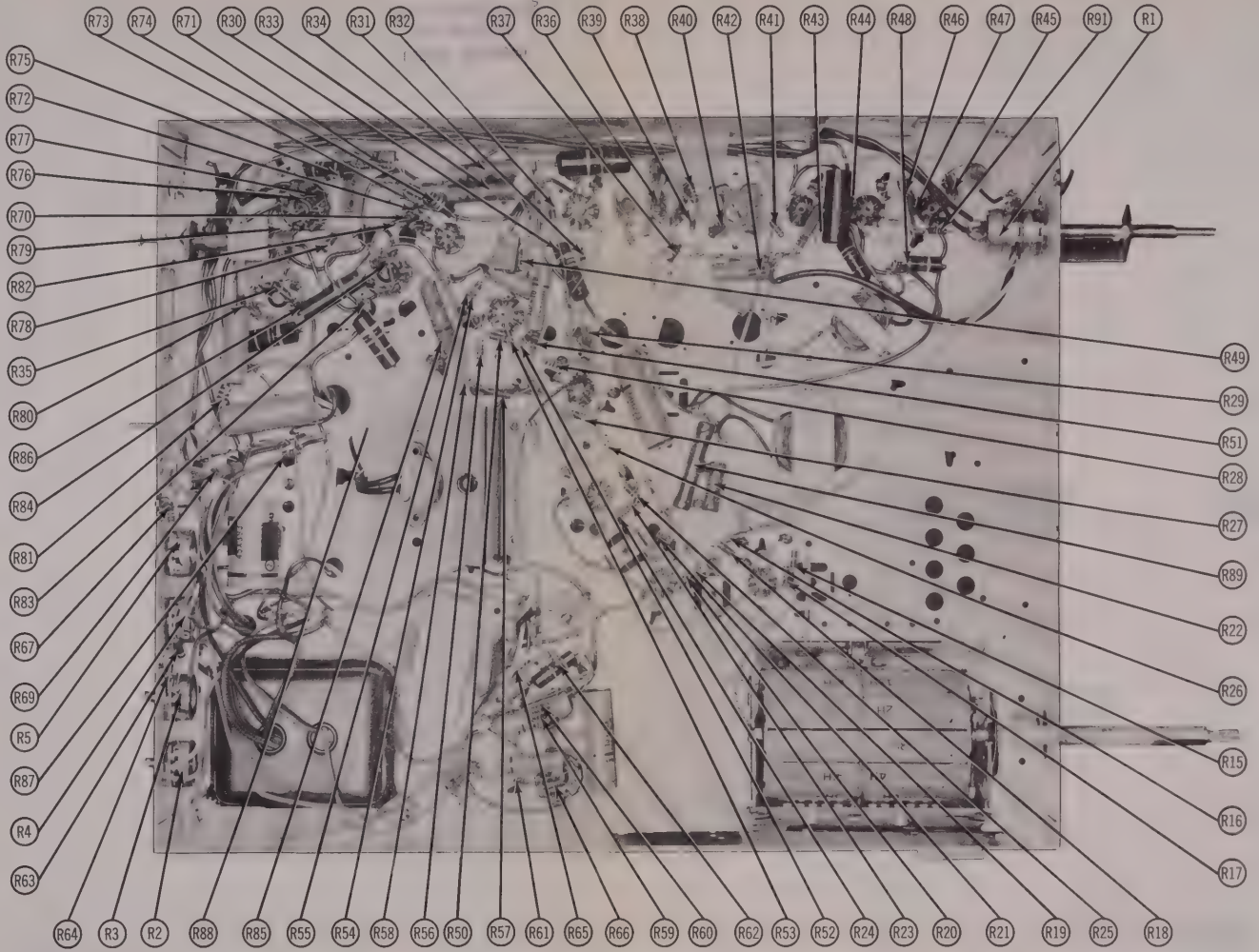
CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

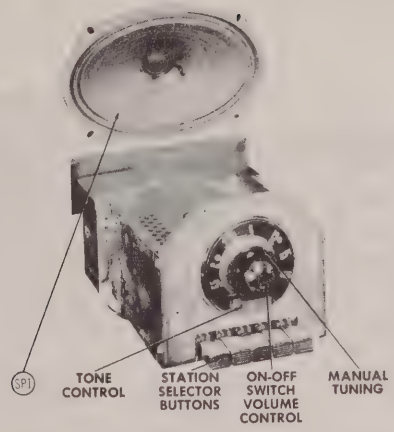
CHASSIS REMOVAL

1. Remove 4 push-on type control knobs from front panel of cabinet.
2. Remove 4 wood screws. Remove rear cover.
3. Remove 2 wood screws. Remove antenna bracket.
4. Disconnect speaker leads.
5. Remove 5 chassis bolts. Remove chassis.
6. Remove 4 speaker nuts. Remove speaker.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

FORD
MODEL 5MF8 (FDH-18805-A2)



TRADE NAME	Ford Model 5MF8 (FDH-18805-A2)
MANUFACTURER	Motorola, Inc., 4545 Augusta. Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated Custom Built AM Superheterodyne Automobile Receiver
TUBES (Eight)	Types 6BA6 RF Amp., 6BE6 Conv., 6BA6 IF Amp., 6AV6 Det.-AF Amp., 6AV6 AVC-Phase Inv., (2) 6AQ5 Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 5.6 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Set tone control to "High".
Step 3 is not necessary unless tuner has been tampered with or a part replaced.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2) Low side to chassis	265KC (400Ω Mod.)	High frequency end stop	Across Voice coil	A1, A2, A3, A4	Adjust for maximum output
2.	Fig. 1	Thru dummy antenna to antenna receptacle	1605KC	"	"	A5, A6, A7	"
3.	"	"	1200KC	Adjust manually 9/32 from high freq. end stop	"	A8, A9, A10	Adjust for maximum output using alignment tool shown in Fig. 2. Repeat step 2, 3, & 4. Cement cores in place.
4.	"	"	600KC (5MV output)	Tune to 600KC Signal	"	R3 (Sensitivity) (Control)	Adjust for 1.79V output (1 Watt)
5.				Weak Station Around 1400KC		A7	With receiver installed in car and antenna fully extended. Adjust A7 for maximum volume.

POINTER CALIBRATION

1. Remove dial scale.
2. Tune to 1400KC signal.
3. Remove pointer from shaft.
4. Set to line up with calibration mark on right side. Push pointer back on shaft.

PUSH BUTTON ADJUSTMENT

1. Allow 15 minute warm-up period.
2. Pull push button out (not off shaft.)
3. Tune to desired station manually.
4. Push push button back on shaft.
5. Repeat for all push buttons.

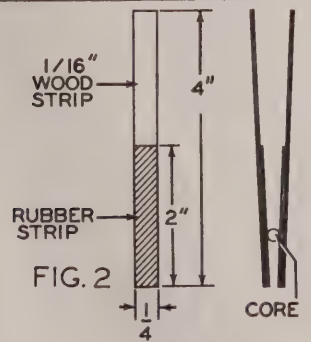


FIG. 2

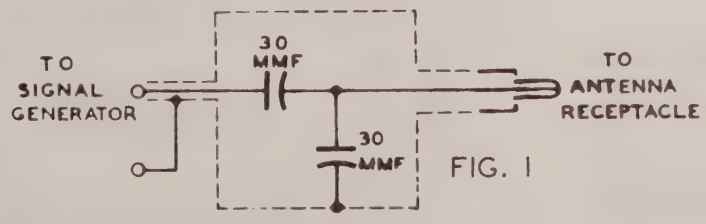


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	Det-AF Amp.	6AV6	6AV6	7BT	
V5	AVC-Phase Inv.	6AV6	6AV6	7BT	
V6	Audio Output	6AQ5	6AQ5	7BZ	
V7	Audio Output	6AQ5	6AQ5	7BZ	
V8	Rectifier	6X4	6X4	5BS	

CAPACITORS

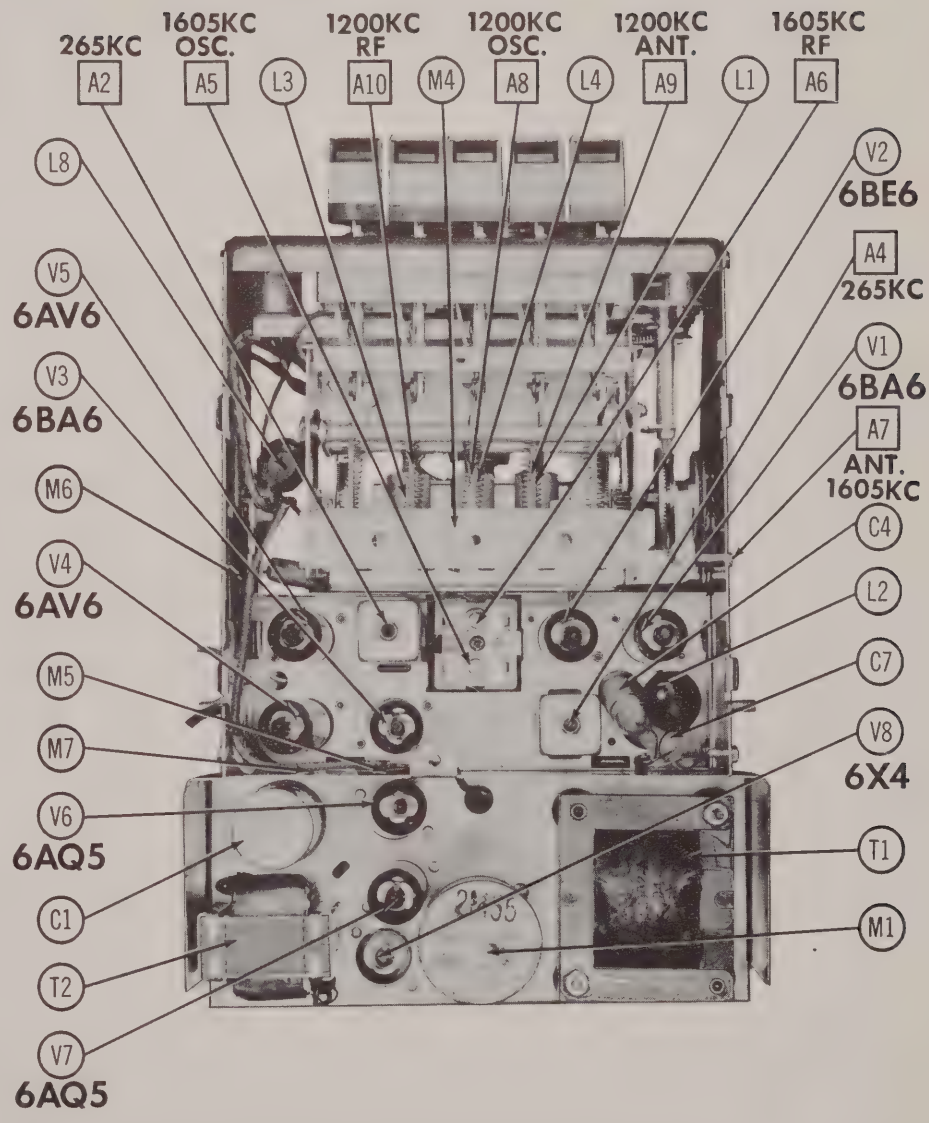
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.
C1A	■20	350	23A532094			FP345.8	TM-3029	T-470
B	▲20	350						
C	20	25						
C2	120		21R114167					
C3	27		21R410089	TCZ-27	NPOL-270			
C4	.05	400	8R121005	DF-503		PT415	IMP4-S5	330415
C5	8.2		21R120547		NPOA-8R2			
C6	47		21R114207	TCN-47	N750K-470	NT-5447		
C7	.05	400	8R121567	DF-503		PT415	IMP4-S5	330415
C8	.01	400	8R121002	D6-103	GP3-333-103	PT411	IMP4-S1	330411
C9	10		21R120548	TCZ-10	NPOA-100	ZT-541		
C10	.01	400	8R121002	D6-103	GP3-333-103	PT411	IMP4-S1	330411
C11	.02	400	8R121003	DF-203	817-02	PT412	IMP4-S2	330412
C12	.004	600	8R121000	D6-402	GP2-333-402	PT624	IMP6-D4	330624
C13	.02	400	8R121566	DF-203	817-02	PT412	IMP4-S2	330412
C14	220		21R410115	DD-221	811-221	UC-5322		K-1322
C15	.01	400	8R121002	D6-103	GP3-333-103	PT411	IMP4-S1	330411
C16	.02	400	8R121566	DF-203	817-02	PT412	IMP4-S2	330412
C17	220		21R410115	DF-221	811-221	UC-5322		K-1322
C18	.02	1000	8R121004			PT1612	CT10-S2	2116-02
C19	.5	100	8K121666			RF480	CT2-P5	330205

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	250KΩ	½	18B531299					Volume & Switch-tapped at 75KΩ
R2	1Meg	½	18A531459					Tone
R3	2000Ω	2	18K520298		39-2000			Sensitivity

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R4	470KΩ	½	6R6032	BTS-470K	
R5	10KΩ	1	6R6430	BTA-10K	
R6	330KΩ	½	6R6014	BTS-330K	
R7	47KΩ	½	6R6056	BTS-47K	
R8	22KΩ	1	6R6289	BTA-22K	
R9	12KΩ	1	6K533221	BTA-12K	
R10	47KΩ	½	6R6056	BTS-47K	
R11	22KΩ	½	6R6397	BTS-22K	
R12	15Meg	½	6R476065	BSS-15Meg	
R13	47Ω	½	6R5550	BTS-47	
R14	330KΩ	½	6R2096	BTS-330K	
R15	1500Ω	½	6R6038	BTS-1500	
R16	1Meg	½	6R6046	BTS-1Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R17	1Meg	½	6R6046	BTS-1Meg	
R18	6.8Meg	½	6R2097	BTS-6.8Meg	
R19	2700Ω	½	6R5577	BTS-2700	
R20	330KΩ	½	6R2096	BTS-330KΩ	
R21	150KΩ	½	6R6398	BTS-150K	
R22	47KΩ	½	6R6048	BTS-47K	
R23	150KΩ	½	6R6398	BTS-150K	
R24	390Ω	1	6R5598	BTA-390	
R25	220KΩ	½	6R6407	BTS-220K	
R26	2200Ω	1	6A533220	BTA-2200	
R27	56Ω	½	6R5614	BTS-56	
R28	56Ω	½	6R5614	BTS-56	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	6.3VCT ⓐ 3.8A	500VCT .046ADC			25C532402-A	P-3068		P6481		V-16K①

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6KΩ CT	4.1Ω	25B532086-A	Z1004①	A-2900①	A-3850①	22S47①	S-51X①	① Fabricate new mounting.

SPEAKER

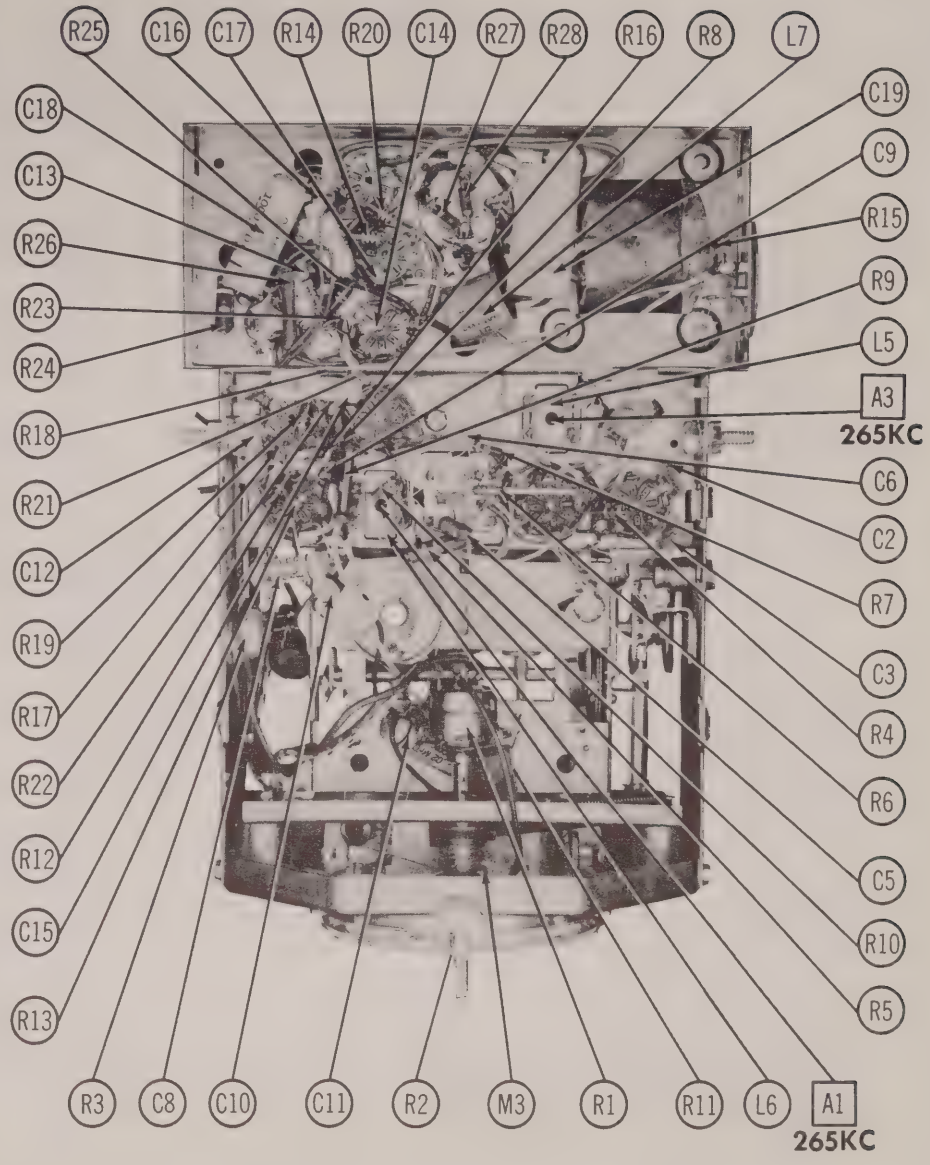
ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	6"x9"	PM	4.1Ω	50D530699 50C530699①	69A2	① Alternate 6" x 9" Speaker

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Antenna Coil	14Ω		24K533629*				Core Part #76K533627- Part of Complete Assy
L2	IF Trap			24K512718				
L3	RF Coil	13Ω		24K533629*				Core Part #76K533627- Part of complete assy.
L4	Osc. Coil	.8Ω	2.8Ω	24K533628■				Core Part #76K533630- Part of complete assy.
L5	Input IF	44Ω	44Ω	24B532152	16-6752	BC-350	12-H1	
L6	Output IF	44Ω	44Ω	24K532153	16-6754	BC-354	12-H6	
L7	Vib. Hash Choke	0Ω		24A532093				18UH
L8	Fil. Choke	0Ω		24K532085				133UH

* Alternate part No. 24K533607-Core part No. 76K533605-Part of complete assembly
■ Alternate part No. 24K533606-Core part No. 76K33608-Part of complete assembly

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

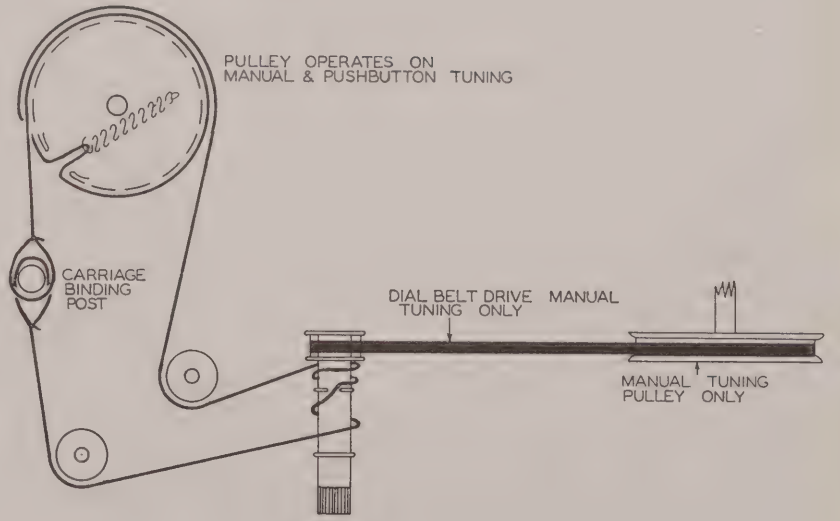
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6.3V	115Ω	48B3333	5342	903M	5342	

FUSES

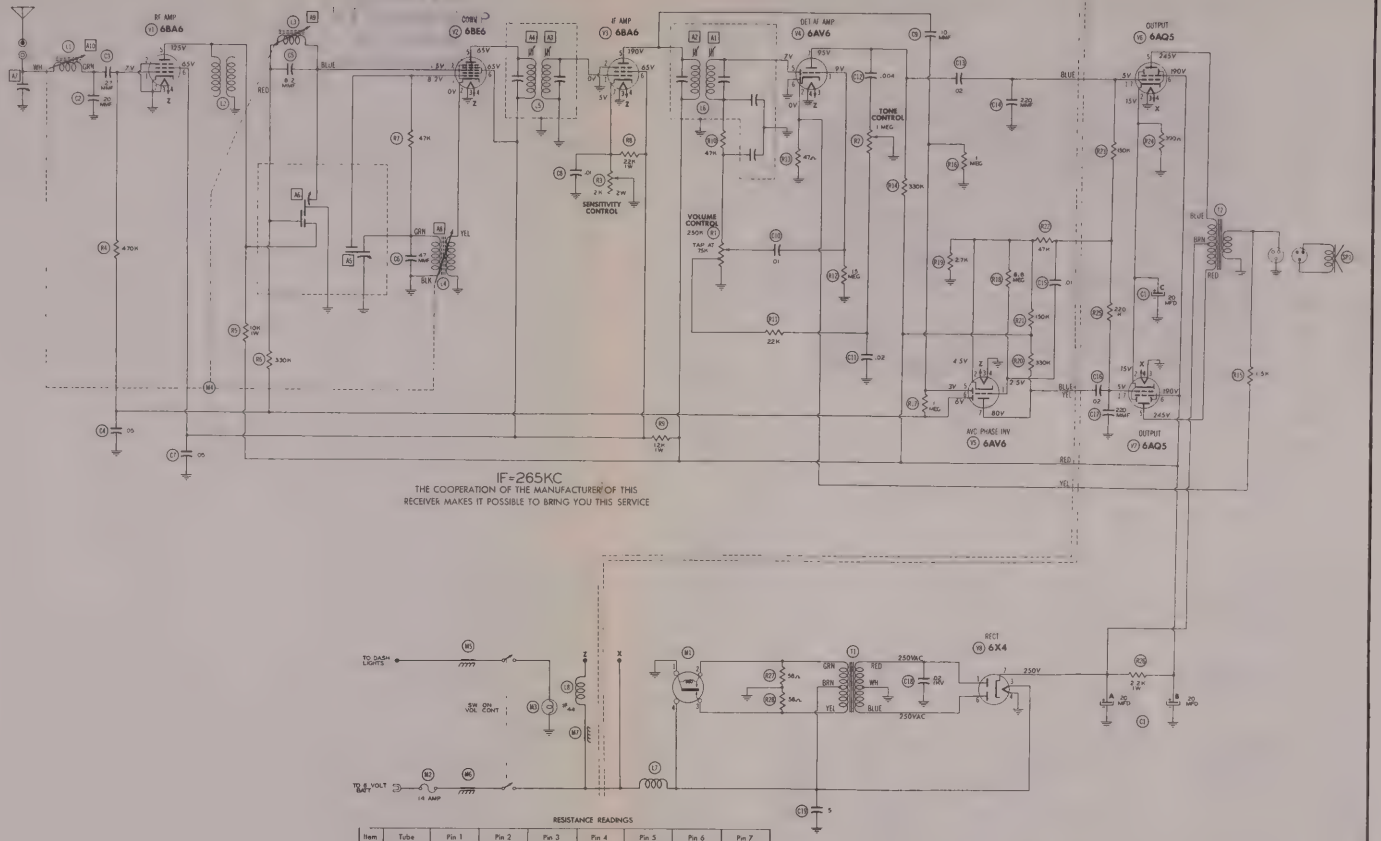
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	14A 32V	65K12894	9K532820	307014 (SFE14)	155014	SFE14	HRI

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Dial Light	65X10867	#44
M4	Tuner	77D532088	Permeability-Includes L1, L3, L4 Not used in all versions.
	Tuner	77K533569	Permeability-Includes L1, L3, L4. Used in some versions.
M5	Spark Plate	64K532087	Dial Light
M6	Spark Plate	64K532087	"A" Lead
M7	Spark Plate	64K532087	Filament
A5, A6	Trimmer Cap.	20K532484	Dual Trimmer-Osc. (370-450 MMF) & RF (5-90 MMF) Unit also consists of 2 (47 MMF) &(220 MMF) Fixed Capacities
A7	Trimmer Cap.	20B530768	Antenna (5-80 MMF)
	Push Button	38B531067	5 Used
	Dial Background	64C532010	
	Dial Pointer	52B531465	
	Dial Scale	1B532364	


TUNING SLUGS FULLY ENGAGED
PULLEY OPERATES ON MANUAL & PUSHBUTTON TUNING
CARRIAGE BINDING POST
DIAL BELT DRIVE MANUAL TUNING ONLY
MANUAL TUNING PULLEY ONLY

DIAL CORD STRINGING



IF=265KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.4Meg	0Ω	0Ω	.4Ω	†12.2KΩ	†14.2KΩ	0Ω
V 2	6BE6	47KΩ	.8Ω	0Ω	.4Ω	†14.2KΩ	†14.2KΩ	2.3Meg
V 3	6BA6	50Ω	0Ω	0Ω	.4Ω	†2.2KΩ	†14.2KΩ	120Ω
V 4	6AV6	15Meg	47Ω	.4Ω	0Ω	250KΩ	0Ω	†332KΩ
V 5	6AV6	6.6Meg	2.7KΩ	.4Ω	0Ω	1Meg	2Meg	†332KΩ
V 6	6AQ5	200KΩ	390Ω	0Ω	.4Ω	†200Ω	†2.2KΩ	200KΩ
V 7	6AQ5	269KΩ	390Ω	0Ω	.4Ω	†200Ω	†2.2KΩ	269KΩ
V 8	6X4	400Ω	NC	.4Ω	0Ω	NC	400Ω	40KΩ

SENSITIVITY CONTROL SET AT MAXIMUM SENSITIVITY.
†MEASURED FROM PIN 7 OF V8.
NC-NO CONNECTION.

1 DC voltage measurements taken with vacuum tube voltmeter.
AC voltages measured at 1000 ohms per volt
2 Socket present readings are taken with no station tuned.
3 Measured voltages are from socket pin to chassis ground.
4 Resistance readings measured with power off. Readings
5 Voltage and resistance measurements of variable controls
variable at ± 10% in voltage and resistance readings.
6 Values marked at maximum as signal applied for voltage
measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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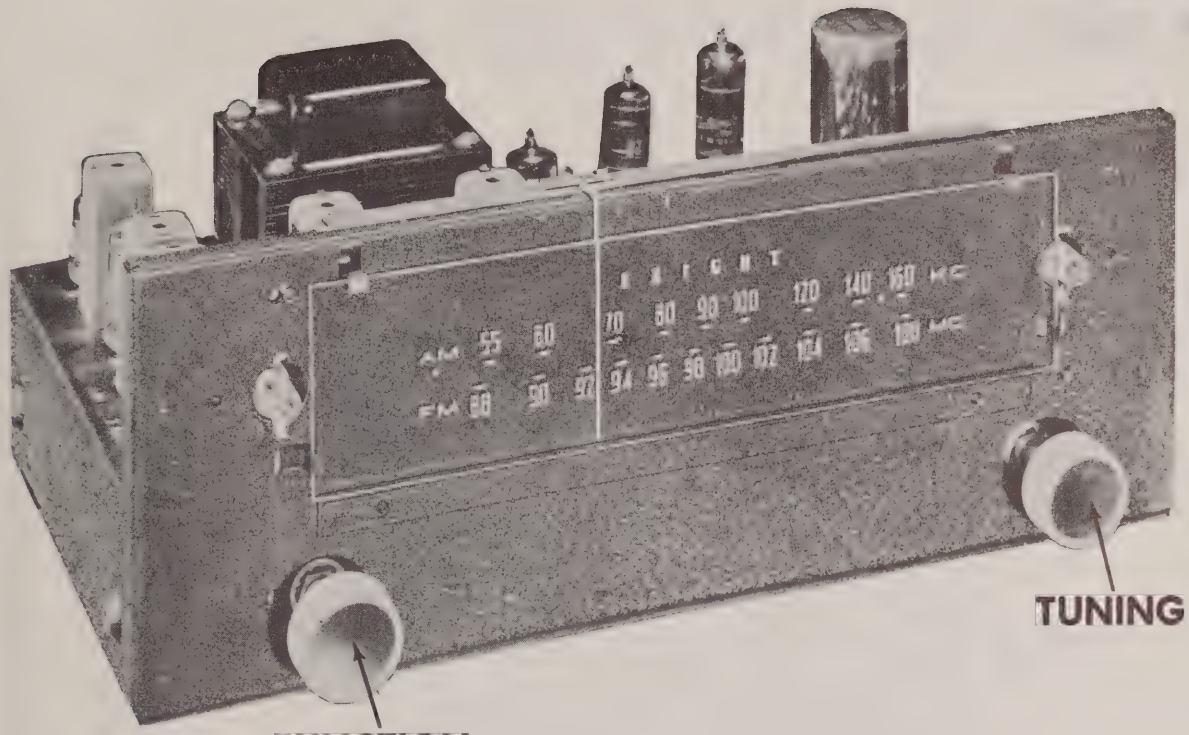
KNIGHT
MODEL 94SX728

PROPERTY OF

KNIGHT
MODEL 94SX728



KNIGHT
MODEL 94SX728

TRADE NAME	Knight Model 94SX728
SUPPLIER	Allied Radio Corp., 100 N. Western Ave., Chicago 80, Ill.
TYPE SET	AC Operated AM-FM Superheterodyne Tuner For Custom Installation
TUBES	Eleven
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .37 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	530KC-1650KC

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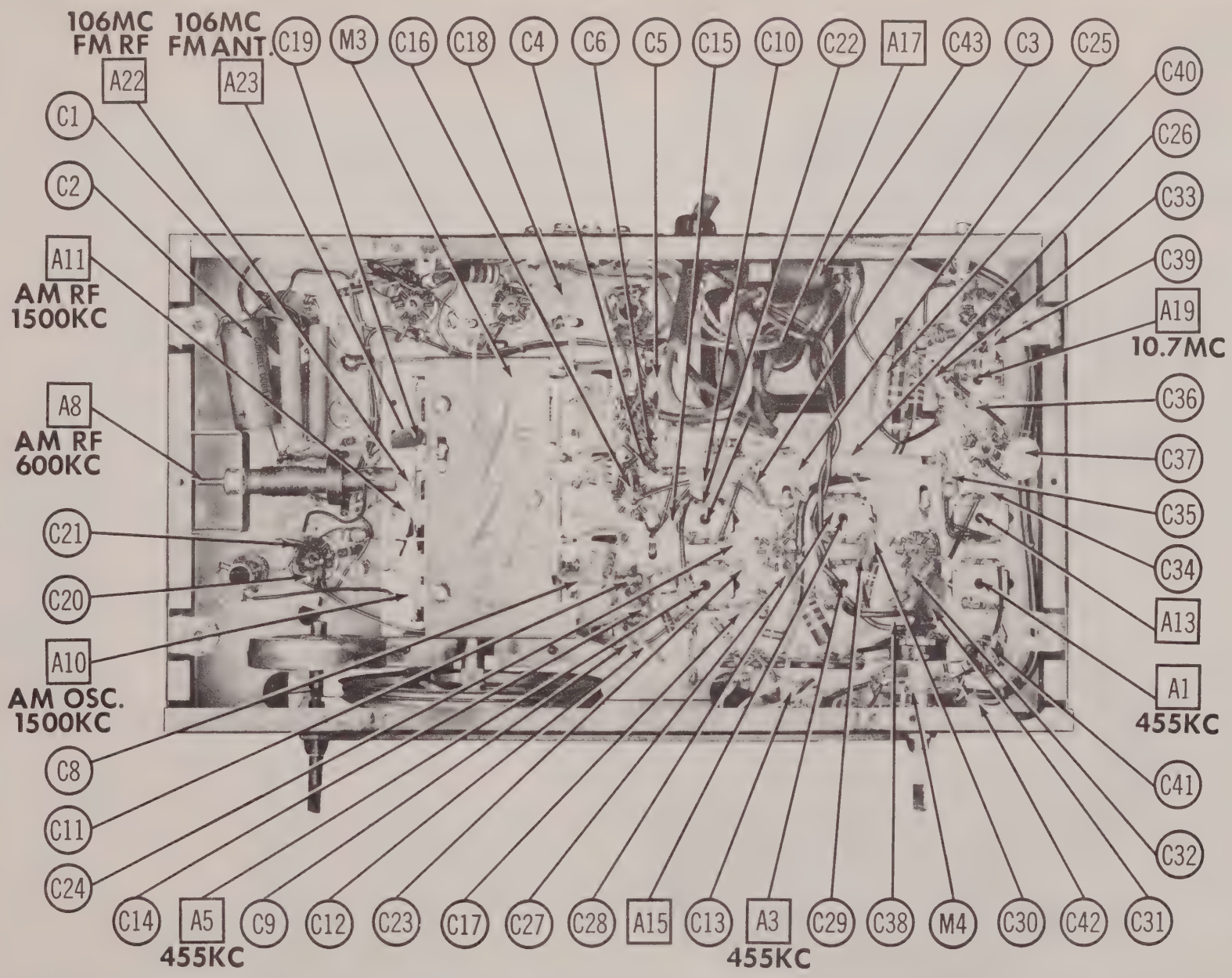
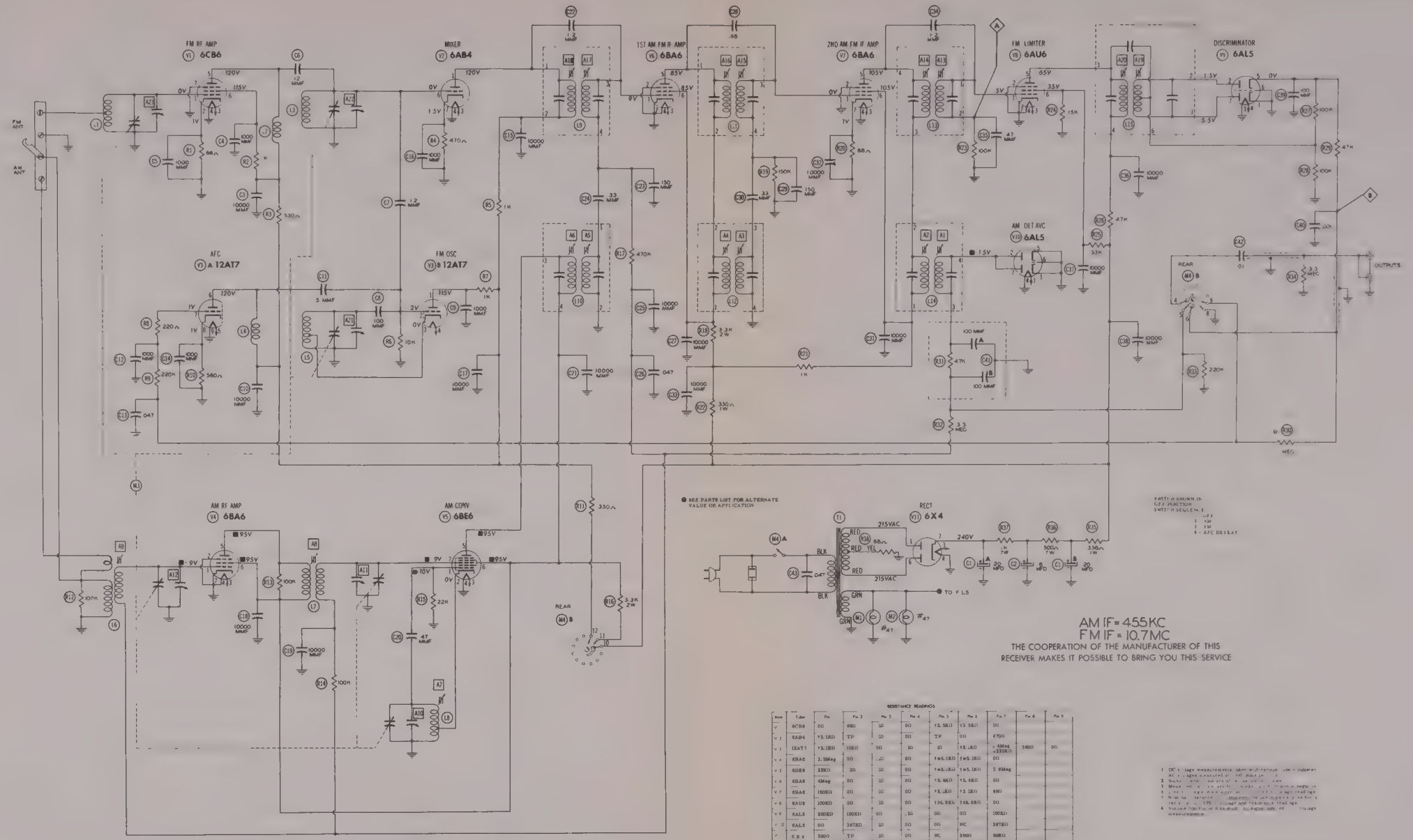


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

SWITCH SHOWN IN OFF POSITION
SWITCH SEQUENCE
1 - OFF
2 - AM
3 - FM
4 - AFC DEFEAT

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	0Ω	68Ω	1Ω	0Ω	†2.5kΩ	†3.5kΩ	0Ω		
V2	6AB4	†3.1kΩ	TP	1Ω	0Ω	TP	0Ω	470Ω		
V3	12AT7	†3.1kΩ	10kΩ	0Ω	1Ω	1Ω	†2.2kΩ	4.4Meg +220kΩ	560Ω	0Ω
V4	6BA6	2.5Meg	0Ω	.2Ω	0Ω	†68.1kΩ	†65.1kΩ	0Ω		
V5	6BE6	22kΩ	2Ω	1Ω	0Ω	†68.1kΩ	†65.1kΩ	2.8Meg		
V6	6BA6	4Meg	0Ω	1Ω	0Ω	†5.4kΩ	†5.4kΩ	0Ω		
V7	6BA6	150kΩ	0Ω	1Ω	0Ω	†2.1kΩ	†2.1kΩ	68Ω		
V8	6AU8	100kΩ	0Ω	1Ω	0Ω	†34.8kΩ	†68.8kΩ	0Ω		
V9	6AL5	200kΩ	100kΩ	0Ω	.1Ω	0Ω	0Ω	100kΩ		
V10	6AL5	0Ω	267kΩ	1Ω	0Ω	0Ω	NC	267kΩ		
V11	6X4	300Ω	TP	1Ω	0Ω	NC	390Ω	90kΩ		

ALL MEASUREMENTS MADE IN FM POSITION UNLESS INDICATED OTHERWISE
† MEASURED FROM PIN 7 OF V11
≠MEASURED IN "AM" POSITION
▲MEASURED IN "FM-AFC DEFEAT" POSITION
NC NO CONNECTION
TP-TIE POINT

1 DC voltage measurements taken with vacuum tube voltmeter
AC voltages measured at 120 volts AC
2 Readings taken with set in a receiving mode
3 Meter reading with no signal input
4 Voltage readings taken with signal generator input
5 Noise no detector
6 Voltage and resistance readings

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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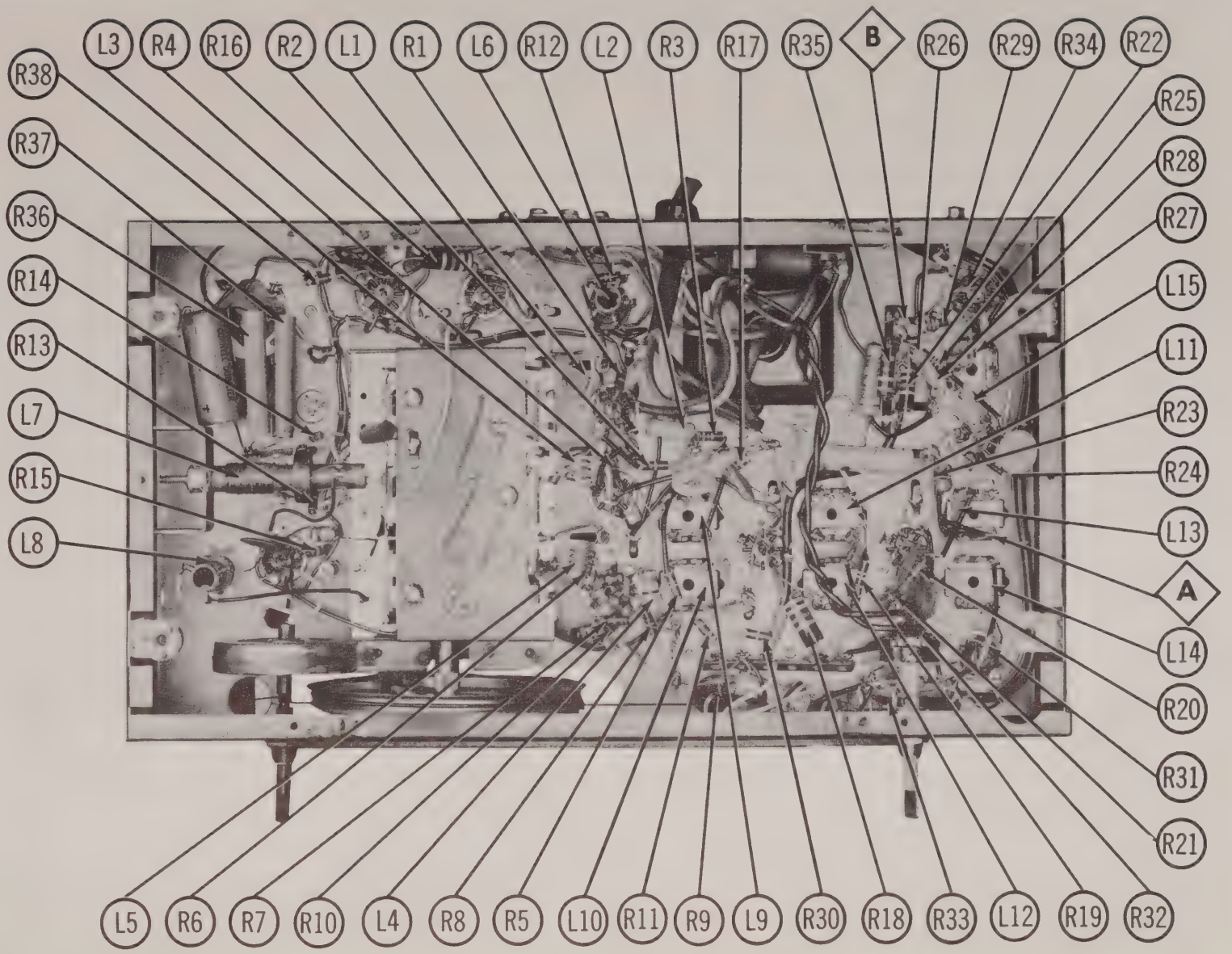


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

KNIGHT
MODEL 94SX728

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V4). Low side to chassis	455KC (400∿ Mod.)	AM	Point of non-interference	Across Voice coil	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
2.	200MMF	High side to AM antenna thru 200MMF. Low side to chassis.	600KC	"	600KC	"	A7, A8, A9	"
3.	"	"	1500KC	"	1500KC	"	A10, A11, A12	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis	10.7MC (unmod.)	FM	Point of non-interference	DC probe thru 100KΩ to point (A). Common to chassis.	A13, A14, A15, A16, A17, A18	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe thru 100KΩ to point (B). Common to chassis.	A20	"
6.	"	"	"	"	"	"	A19	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis	10.7MC (450KC Swp.)	FM	Point of non-interference	Vert. Amp. thru 100KΩ to point (A). Low side to chassis.	A13, A14, A15, A16, A17, A18	Adjust for maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. thru 100KΩ to point B. Low side to chassis.	A19, A20	Adjust A19 so that 10.7MC occurs at center of crossover lines similar to Fig. 2. Adjust A20 for maximum amplitude and straightness of crossover lines. Repeat the adjustment of A19 & A20. Continue with step 7.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω Carbon Resistor	High side to FM Antenna terminal. Low side to chassis	106MC	FM	106MC	DC probe thru 100KΩ to point (A). Common to chassis.	A21, A22 A23	Adjust for maximum output.
8.	"	"	90MC	"	90MC	"		Check tracking. If necessary, repeat step 7.

FIG. 1

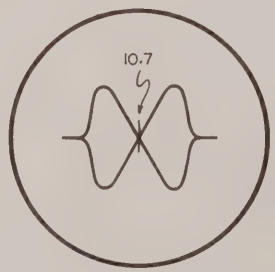


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT		
V1	FM RF Amp.	6CB6	6CB6	7CM	
V2	FM Mixer	6AB4	6AB4	5CE	
V3	FM Osc. -AFC	12AT7	12AT7	9A	
V4	AM RF Amp.	6BA6	6BA6	7BK	
V5	AM Converter	6BE6	6BE6	7CH	
V6	1st FM-AM IF Amp.	6BA6	6BA6	7BK	
V7	2nd FM-AM IF Amp	6BA6	6BA6	7BK	
V8	FM Limiter	6AU6	6AU6	7BK	
V9	Discriminator	6AL5	6AL5	6BT	
V10	AM Det. -AVC	6AL5	6AL5	6BT	
V11	Rectifier	6 X 4	6 X 4	5BS	

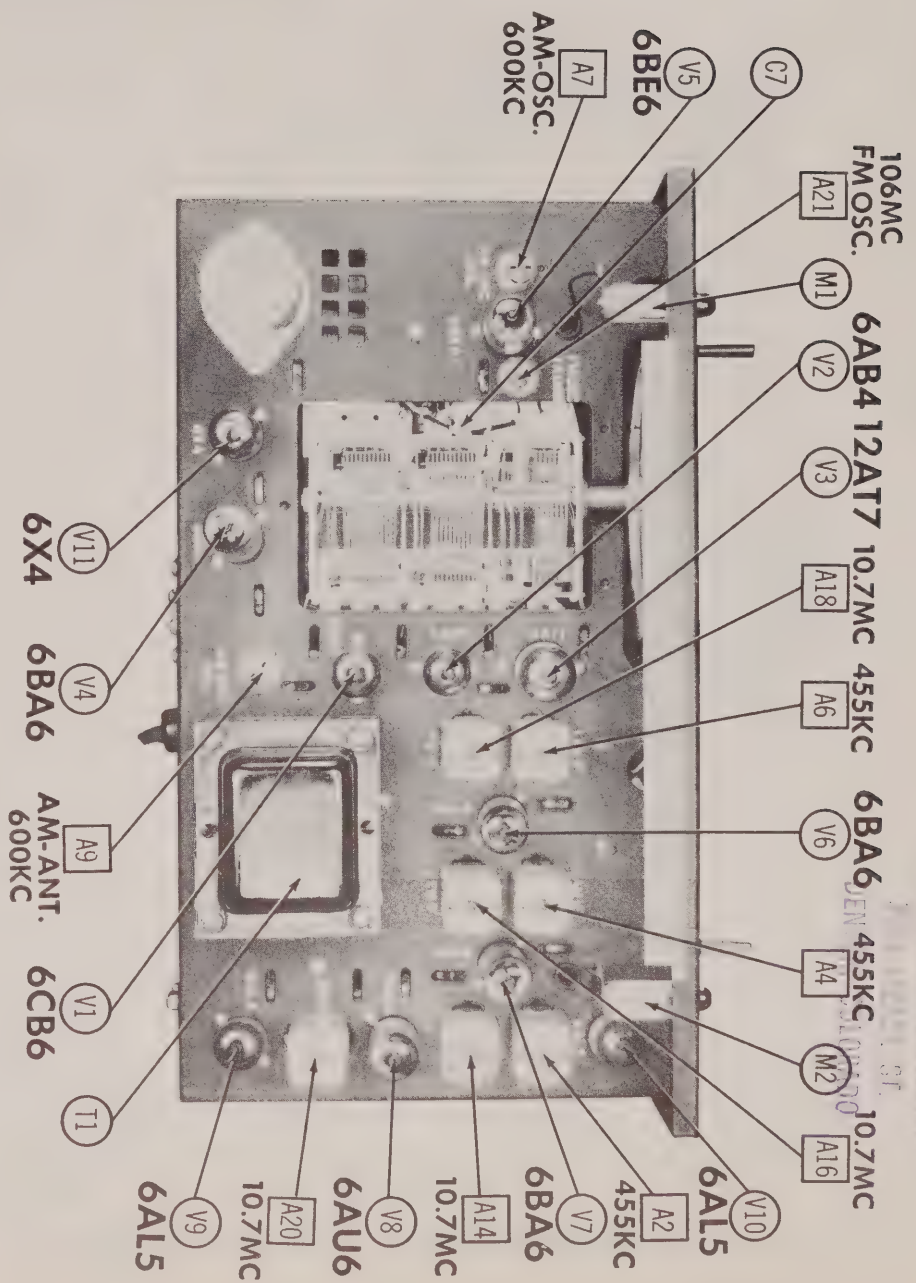
CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	KNIGHT PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲20					FP376.5	TM-D20-500	T-140	
B	▲20								
C2	8	250				TC51	TD-8-250	FM-2508	
C3	10000			DD-103	811-01	DC511			
C4	1000				811-102			KR-1210	
C5	1000				811-102			KR-1210	
C6	12			D6-120	831-120			KR-1412	
C7	1.2								
C8	100			TCA-100	N330-337-101				
C9	1000				811-102			KR-1210	
C10	10000			DD-103	811-01	DC511			
C11	5								
C12	1000				811-102			KR-1210	
C13	.047	200		DF-503		PT4147	IMP2-S47	3302147	
C14	1000			D6-102	GP2L-102	UC521		K-1210	
C15	10000			DD-103	811-01	DC511			
C16	1000				811-102			KR-1210	
C17	10000			DD-103	811-01	DC511			
C18	10000			DD-103	811-01	DC511			
C19	10000			DD-103	811-01	DC511			
C20	47			D6-470	GP1K-470	NT5447		KR-1447	
C21	10000			DD-103	811-01	DC511			
C22	1.2								
C23	150			DD-151	811-151	ZT-5315		KR-1315	
C24	33			DD-330	831-330	ZT-5433		KR-1433	
C25	10000			DD-103	811-01	DC511			
C26	.047	200		DF-503		PT4147	IM2-S47	3302147	
C27	10000			DD-103	811-01	DC511			
C28	.68			TCZ-R68	NPOA-0R68				
C29	150			DD-151	811-151	ZT-5315		KR-1315	
C30	33			DD-330	831-330	ZT-5433		KR-1433	
C31	10000			DD-103	811-01	DC511			
C32	10000			DD-103	811-01	DC511			
C33	10000			DD-103	811-01	DC511			
C34	1.2								
C35	47			D6-470	GP1K-470	ZT-5447		KR-1447	
C36	10000			DD-103	811-01	DC511			
C37	10000			DD-103	811-01	DC511			
C38	10000			DD-103	811-01	DC511			
C39	100			TCA-100	N330-337-101				
C40	.001	200		D6-102	GP2L-102	PT621	IMP6-D1	330221	
C41A	100		♦	♦PC-50	1403-01	UC-531		K-1310	
B	100					UC-531		K-1310	
C42	.01	200		D6-103	GP-333-103	PT611	IMP6-S1	330211	
C43	.047	600		DF-503		PT6147	IMP6-S47	3306147	

♦ Items C41A, C41B, and R31 are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	KNIGHT PART No.	IRC PART No.	
R1	68Ω	½		BTS-68	
R2	1000Ω	½		BTS-1000	
R3	330Ω	½		BTS-330	
R4	470Ω	½		BTS-470	
R5	1000Ω	½		BTS-1000	
R6	10KΩ	½		BTS-10K	
R7	1000Ω	½		BTS-1000	
R8	220Ω	½		BTS-220	
R9	220KΩ	½		BTS-220K	
R10	560Ω	½		BTS-560	
R11	330Ω	½		BTS-330	
R12	100KΩ	½		BTS-100K	
R13	100KΩ	½		BTS-100K	
R14	100KΩ	½		BTS-100K	
R15	22KΩ	½		BTS-22K	
R16	3300Ω	2		BTB-3300	
R17	470KΩ	½		BTS-470K	
R18	3300Ω	2		BTB-3300	
R19	150KΩ	½		BTS-150K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	KNIGHT PART No.	IRC PART No.	
R20	68Ω	½		BTS-68	
R21	1000Ω	½		BTS-1000	
R22	330Ω	1		BTA-330	
R23	100KΩ	½		BTS-100K	
R24	15KΩ	½		BTS-15K	
R25	33KΩ	½		BTS-33K	
R26	47KΩ	½		BTS-47K	
R27	100KΩ	½		BTS-100K	
R28	100KΩ	½		BTS-100K	
R29	47KΩ	½		BTS-47K	
R30	1Meg	½		BTS-1Meg	Note 1.
R31	47KΩ	½	♦	BTS-47K	
R32	3.3Meg	½		BTS-3.3Meg	
R33	220KΩ	½		BTS-220K	
R34	3.3Meg	½		BTS-3.3Meg	
R35	330Ω	1		BTA-330	
R36	500Ω	7		1 3/4A-500	
R37	1000Ω	7		1 3/4A-1000	
R38	68Ω	½		BTS-68	

♦ Items R31, C41A, & C41B are combined in one unit.
Note 1. Some versions use a 3.3Meg resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .37A	430VCT .050ADC	6.3V @ 3.7A		T380-1					

COILS (RF-IF)

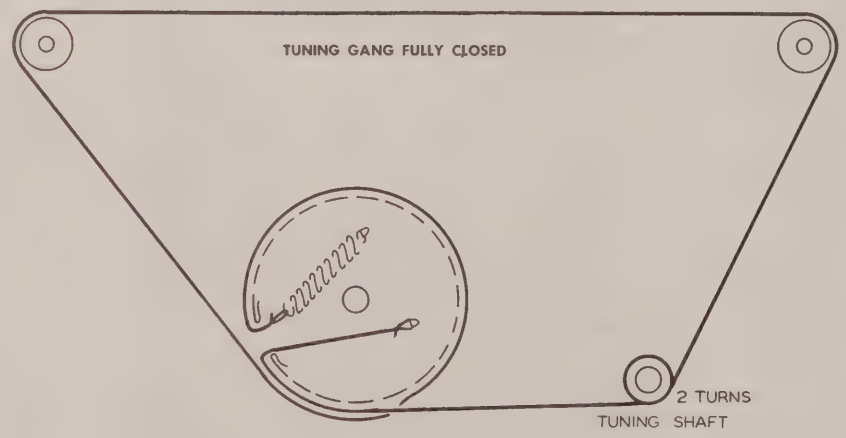
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM antenna coil	0Ω		U-402				Tapped
L2	RF choke	3Ω		U-507	19-1003		4608	3.3UH, IRC Part No. CLA
L3	FM RF Coil	0Ω		U-401				
L4	RF Choke	.8Ω		U-501	19-1000		4602	1UH, IRC Part No. CLA
L5	FM Osc. Coil	0Ω		U-403				Tapped
L6	AM Antenna Coil	32Ω*	2.8Ω	U-304				*Tapped @ .1Ω
L7	AM RF Coil	73Ω	2.8Ω	U-301				
L8	AM Osc. Coil	2.2Ω■		U-303	14-1060▲		71-Osc.▲	■Tapped @ .2Ω
L9	1st FM IF	.6Ω	.6Ω	H-294	16-3487	FM-254	1463	
L10	1st AM IF	16Ω	16Ω	H-297	16-6758	BC-352	12-C1	
L11	2nd FM IF	.7Ω	.7Ω	H-355	16-3487	FM-254	1463	
L12	2nd AM IF	16Ω	16Ω	H-297	16-6758	BC-353	12-C2	
L13	3rd FM IF	.7Ω	.7Ω	H-355	16-3487	FM-254	1463	
L14	3rd AM IF	16Ω	16Ω	H-297	16-6758	BC-353	12-C2	
L15	Discriminator	.7Ω	.8ΩCT	H-295	17-3494	FM-253	FM	

▲ Use primary winding & drill mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

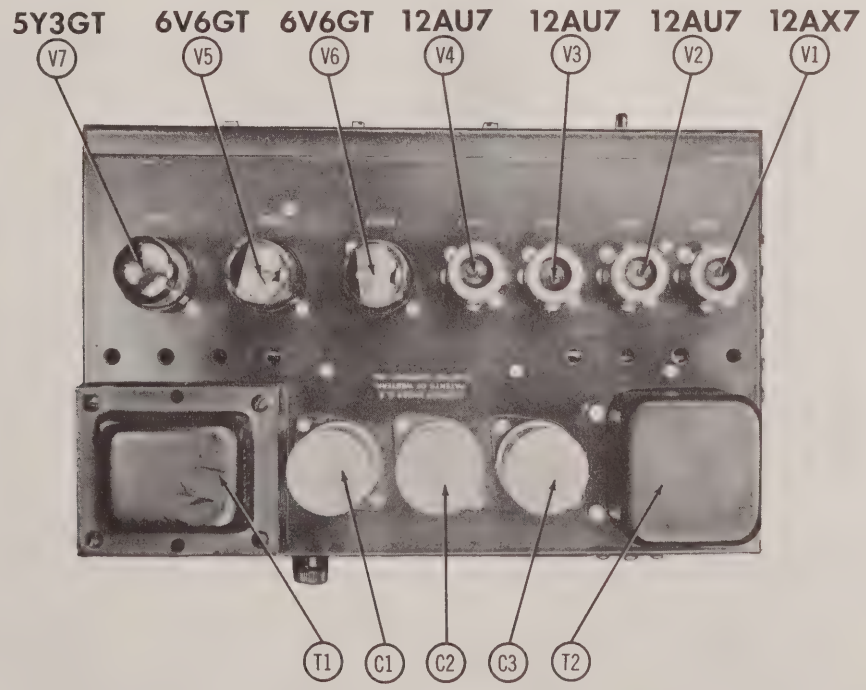
ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M1	Dial Light		#47
M2	Dial Light		#47
M3	Tuning Cap.	C-619C	6 Gang (AM Sections: 33-545MMF, 33-545MMF, 32-200MMF)
M4A	Switch		On-Off
B	Switch		Selector (Rotary-Wafer Type)



DIAL CORD STRINGING

DON MC GOHAN
MODEL WA-310

TRADE NAME	Don McGohan Model WA-310	
MANUFACTURER	Don McGohan, Inc., 3700 W. Roosevelt Rd., Chicago 24, Ill.	
TYPE SET	AC Operated 3 Channel 12 Watt Audio Amplifier	
TUBES (Seven)	Types 12AX7 Preamp., 12AU7 AF Amp., 12AU7 AF Amp, 12AU7 Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .67 Amp. @ 117 Volts AC



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PARTS LIST AND DESCRIPTIONS

DON MC GOHAN
MODEL WA-310

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		McGohan PART No.	STANDARD REPLACEMENT		
V1	Preamp.	12AX7	12AX7	9A	
V2	AF Amp.	12AU7	12AU7	9A	
V3	AF Amp.	12AU7	12AU7	9A	
V4	Phase Inv.	12AU7	12AU7	9A	
V5	Audio Output	6V6GT	6V6GT	7S	
V6	Audio Output	6V6GT	6V6GT	7S	
V7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

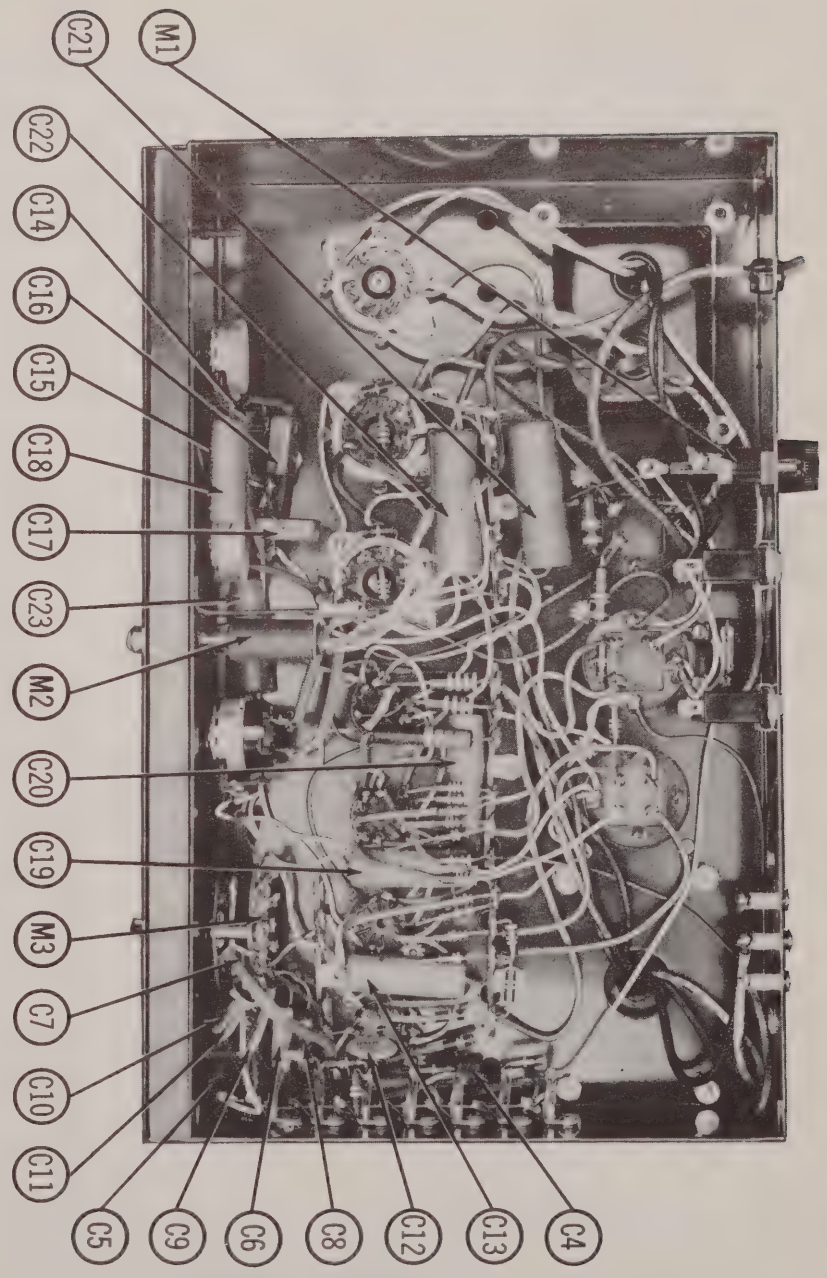
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	McGohan PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	■30	450				FP368.6	TM-3051	Q-307	
B	▬30	450							
C	▲125	25							
C2A	■30	450				FP368.6	TM-3051		
B	▬30	450							
C	▲125	25							
C3A	▬20	450				FP422.1	TM-4012	Q-255	
B	▲20	200							
C	■80	200							
D	50	50							
C4	.05	600		DF-503		PT615	IMP6-S5	330615	
C5	.05	600		DF-503		PT615	IMP6-S5	330615	
C6	3300	500						CR-1233	
C7	10000			DD-103	811-01	DC511			
C8	1500	500						CR-1215	
C9	10000			DD-103	811-01	DC511			
C10	5000			DD-502	811-005	DC525		C-1250	
C11	10000			DD-103	811-01	DC511			
C12	10000			DD-103	811-01	DC511			
C13	.05	600		DF-503		PT615	IMP6-S5	330615	
C14	.05	600		DF-503		PT615	IMP6-S5	330615	
C15	180	500		TCZ-180	NPO-334-181			KR-1318	
C16	2000	500				MCE457		CR-1220	
C17	2000	500				MCE457		CR-1220	
C18	.02	600		DD-203	817-02	PT612	IMP6-S2	330612	
C19	.05	600		DF-503		PT615	IMP6-S5	330615	
C20	.05	600		DF-503		PT615	IMP6-S5	330615	
C21	.1	600		DF-104		PT601	IMP6-P1	330601	
C22	.1	600		DF-104		PT601	IMP6-P1	330601	
C23	.05	600		DF-503		PT615	IMP6-S5	330615	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	McGohan PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	BA012-352	Q13-133	A47-500K-Z	AB-60	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A
R2A	1Meg	½	BA011-1048	Q13-137	A47-1Meg-Z	BSK-70	U-53	BASS
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R2A
R3A	1Meg	½	BA011-1048	Q13-137	A47-1Meg-Z	BSK-70	U-53	Treble
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R3A

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	McGohan PART No.	IRC PART No.	
R4	1Meg	½		BTS-1Meg	
R5	1Meg	½		BTS-1Meg	
R6	18KΩ	½		BTS-18K	
R7	12KΩ	½		BTS-12K	
R8	15KΩ	½		BTS-15K	
R9	2.2Meg	½		BTS-2.2Meg	
R10	100KΩ	½		BTS-100K	
R11	1.5Meg	½		BTS-1.5Meg	
R12	33KΩ	½		BTS-33K	
R13	150KΩ	½		BTS-150K	
R14	39KΩ	½		BTS-39K	
R15	33KΩ	½		BTS-33K	
R16	10Meg	½		BTS-10Meg	
R17	100KΩ	½		BTS-100K	
R18	2700Ω	½		BTS-2700	Note 1.
R19	100KΩ	½		BTS-100K	
R20	15KΩ	½		BTS-15K	
R21	100KΩ	½		BTS-100K	
R22	10KΩ	½		BTS-10K	
R23	100KΩ	½		BTS-100K	
R24	2700Ω	½		BTS-2700	
R25	22KΩ	½		BTS-22K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	McGohan PART No.	IRC PART No.	
R26	47KΩ	½		BTS-47K	
R27	470KΩ	½		BTS-470K	
R28	6800Ω	½		BTS-6800	
R29	100KΩ	½		BTS-100K	
R30	27KΩ	½		BTS-27K	
R31	470KΩ	½		BTS-470K	
R32	4700Ω	½		BTS-4700	
R33	4700Ω	½		BTS-4700	
R34	220KΩ	½		BTS-220K	
R35	47KΩ	1		BTA-47K	
R36	47KΩ	1		BTA-47K	
R37	1000Ω	½		BTS-1000	
R38	330KΩ	½		BTS-330K	
R39	1000Ω	½		BTS-1000	
R40	300Ω	5		1 3/4A-300	
R41	330KΩ	½		BTS-330K	
R42	1000Ω	½		BTS-1000	
R43	1000Ω	1		BTA-1000	
R44	1000Ω	1		BTA-1000	
R45	2.2Ω	2			
R46	1Meg	½		BTS-1Meg	Note 2.

Note 1. Some versions use a 22Ω resistor in this application.
Note 2. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .67A	700VCT .089ADC①	5VAC @ 2A	6.3VCT @ 2.05A						

① File mounting holes if necessary.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	McGohan PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6KΩ CT	16Ω Tap @8Ω							

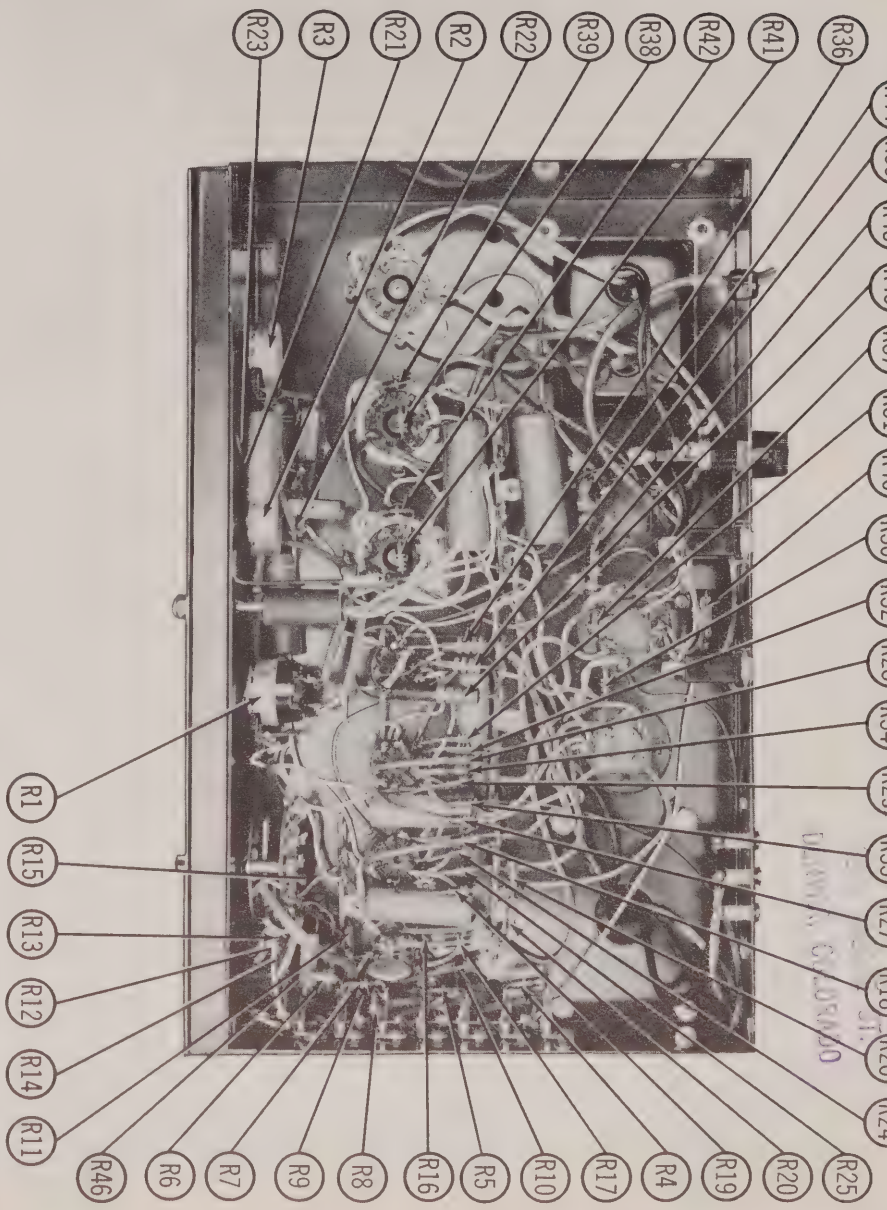
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			McGohan PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2 AMp. 250 V.			312002. (3AG-2 Amp.)	342001	AGC2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	McGohan PART No.	NOTES
M2	Pilot Light		#47
M3	Switch		Selector & Record Compensation-(Rotary-Wafer Type)

CHASSIS—BOTTOM VIEW

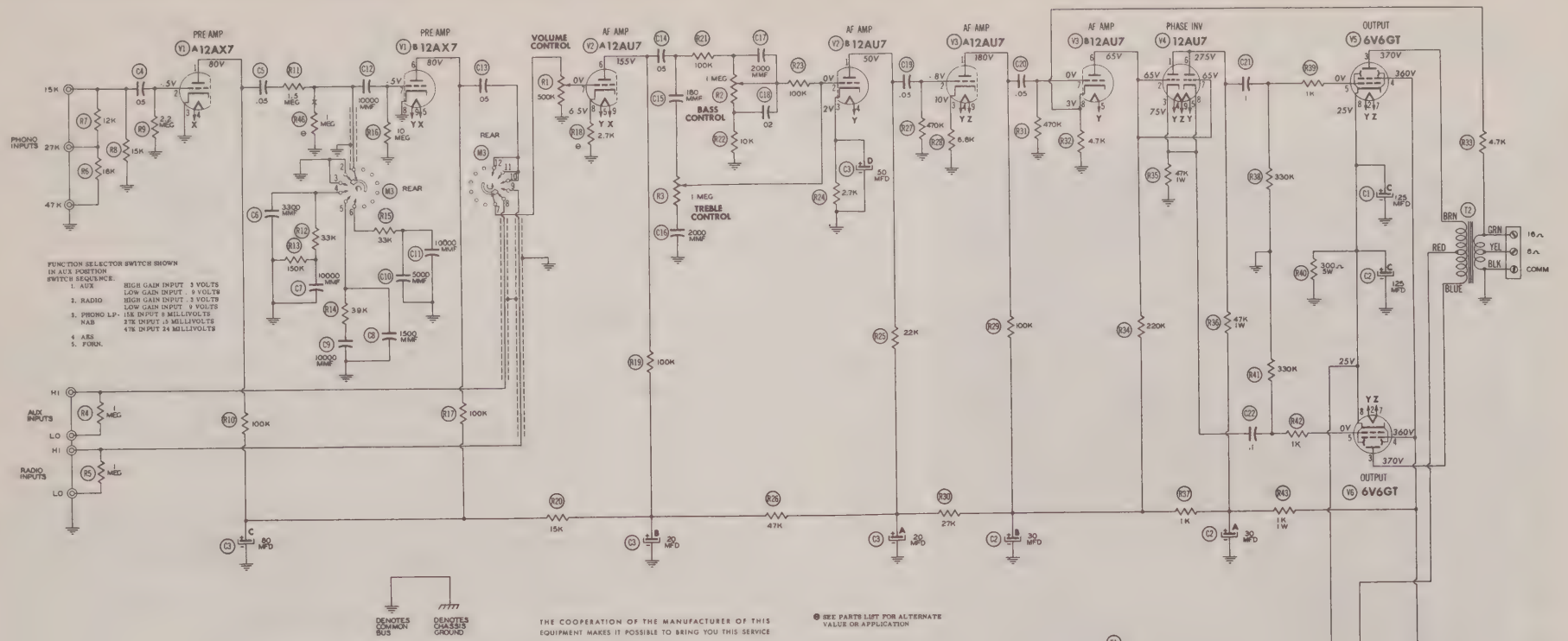


PROPERTY OF

SET 289 FOLDER 6

DON MC GOHAN MODEL WA-310

DON MC GOHAN MODEL WA-310



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†183KΩ	3.3Meg	0Ω	300Ω	300Ω	†192KΩ	10Meg	0Ω	300Ω
V 2	12AU7	†177KΩ	250Ω	2.2KΩ	300Ω	300Ω	†52KΩ	1.1Meg	2.7KΩ	300Ω
V 3	12AU7	†105KΩ	570KΩ	6.8KΩ	300Ω	300Ω	†223KΩ	470KΩ	4.7KΩ	300Ω
V 4	12AU7	†49KΩ	†223KΩ	47KΩ	300Ω	300Ω	†49KΩ	†223KΩ	47KΩ	300Ω
V 5	6V6GT	TP	300Ω	†150Ω	†1KΩ	33KΩ	TP	300Ω	300Ω	
V 6	6V6GT	TP	300Ω	†150Ω	†1KΩ	33KΩ	TP	300Ω	300Ω	
V 7	5Y3GT	NC	50KΩ	NC	1.1KΩ	NC	1.1KΩ	NC	50KΩ	

ALL MEASUREMENTS WITH SELECTOR SWITCH IN MAXIMUM CLOCKWISE POSITION.
* 6.3VAC MEASURED ACROSS FILAMENT.
† MEASURED FROM PIN 8 OF V 7.
NC NO CONDITION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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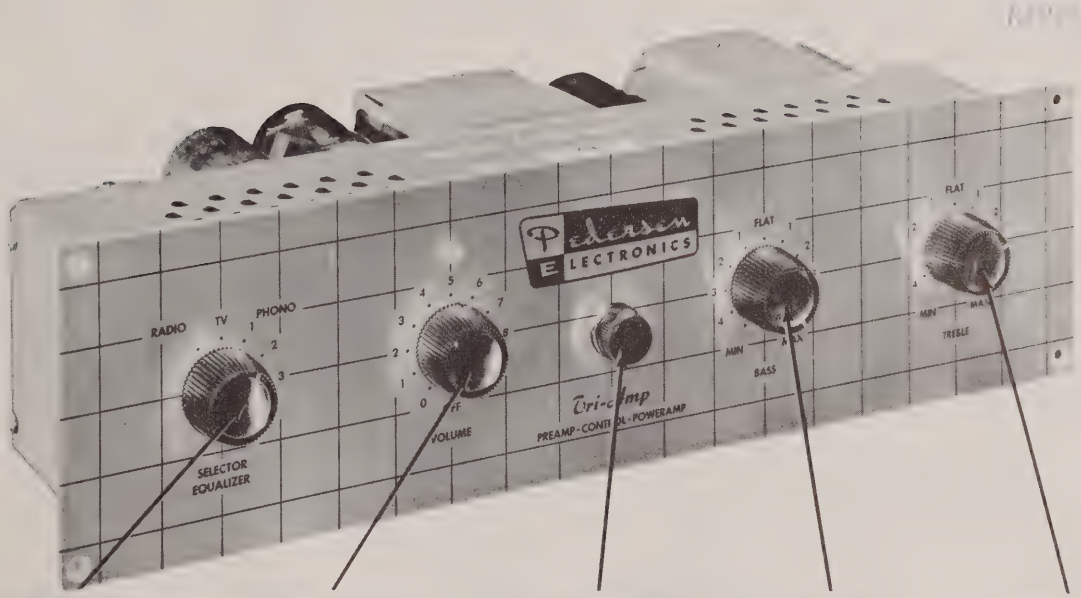
PEDERSEN
MODEL PCP-20



SELECTOR EQUALIZER SWITCH

ON-OFF SWITCH VOLUME CONTROL

LOUDNESS CONTROL

BASS CONTROL

TREBLE CONTROL

PEDERSEN
MODEL PCP-20

TRADE NAME	Pedersen Model PCP-20
MANUFACTURER	Pedersen Electronics, P. O. Box 572, Lafayette, Calif.
TYPE SET	AC Operated 20 Watt Audio Amplifier
TUBES (Six)	Types 12AX7 Phono Preamp., 12AX7 AF Amp., 12AU7 AF Amp. -Phase Inv., (2) 5881 Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .81 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

PEDERSEN MODEL PCP-20

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: PEDERSEN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Phono Preamp.	12AX7	12AX7	9A	
V2	AF Amp.	12AX7	12AX7	9A	
V3	AF Amp.-Phase Inv.	12AU7	12AU7	9A	
V4	Audio Output	5881	5881	7S	
V5	Audio Output	5881	5881	7S	
V6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: PEDERSEN PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	20	500				TC83	TD-20-500	S-315	
B	20	500				TC83	TD-20-500	S-315	
C2A	10	300				FP427.9	T-4019	Q-250	
B	20	300							
C	20	350							
D	20	25							
C3	500	25				TC505	TD-500-25	MTH-2550	
C4	10000			DD-103	811-01	DC511	IMP6-S1	330611	
C5	2000			DD-202	801-002	DC522	IMP6-D2	C-1220	
C6	1000			DD-102	801-001	DC521	IMP6-D1	K-1210	
C7	2000			D6-202	801-002	DC522	IMP6-D2	C-1220	
C8	3300			D6-332	811-0033	UC-5233	IMP6-D33	C-1233	
C9	1200			D6-122	GP2L-122	UC-5212		C-1212	
C10	820			D6-821	GP2L-821			K-1382	
C11	680			D6-681	GP2K-681	UC-5368		K-1368	
C12	10000			DD-103	811-01	DC511	IMP6-S1	330611	
C13	10000			DD-103	811-01	DC511	IMP6-S1	330611	
C14A	200		♦	DD-201	811-201	UC-532		K-1320	
B	100		♦	DD-101	801-101	UC-531		K-1310	
C	4500		♦	DD-472	811-0047	UC-5247		C-1247	
D	4500		♦	DD-472	811-0047	UC-5247		C-1247	
C15	.05	400		DF-503		PT415	IMP4-S5	330415	
C16	1000			DD-102	801-001	DC521	IMP6-D1	K-1210	
C17	10000			DD-103	811-01	DC511	IMP6-S1	IMP6-S1	
C18	10000			DD-103	811-01	DC511	IMP6-S1	IMP6-S1	Note 1
C19	200			DD-201	811-201	UC-532		K-1320	
C20	2200			DD-222	811-0022	UC-5222		C-1222	
C21	10000			DD-103	811-01	DC-511	IMP6-S1	IMP6-S1	
C22	300			TCZ-300	NP0-333-301	UC-533		K-1330	
C23	10000			DD-103	811-01	DC-511	IMP6-S1	IMP6-S1	
C24	10000			DD-103	811-01	DC-511	IMP6-S1	IMP6-S1	
C25	1000			DD-102	801-001	DC521	IMP6-D1	K-1210	
C26	.1	400		DF-104		PT401	IMP4-P1	330401	
C27	.05	400		DF-503		PT415	IMP4-S5	330415	

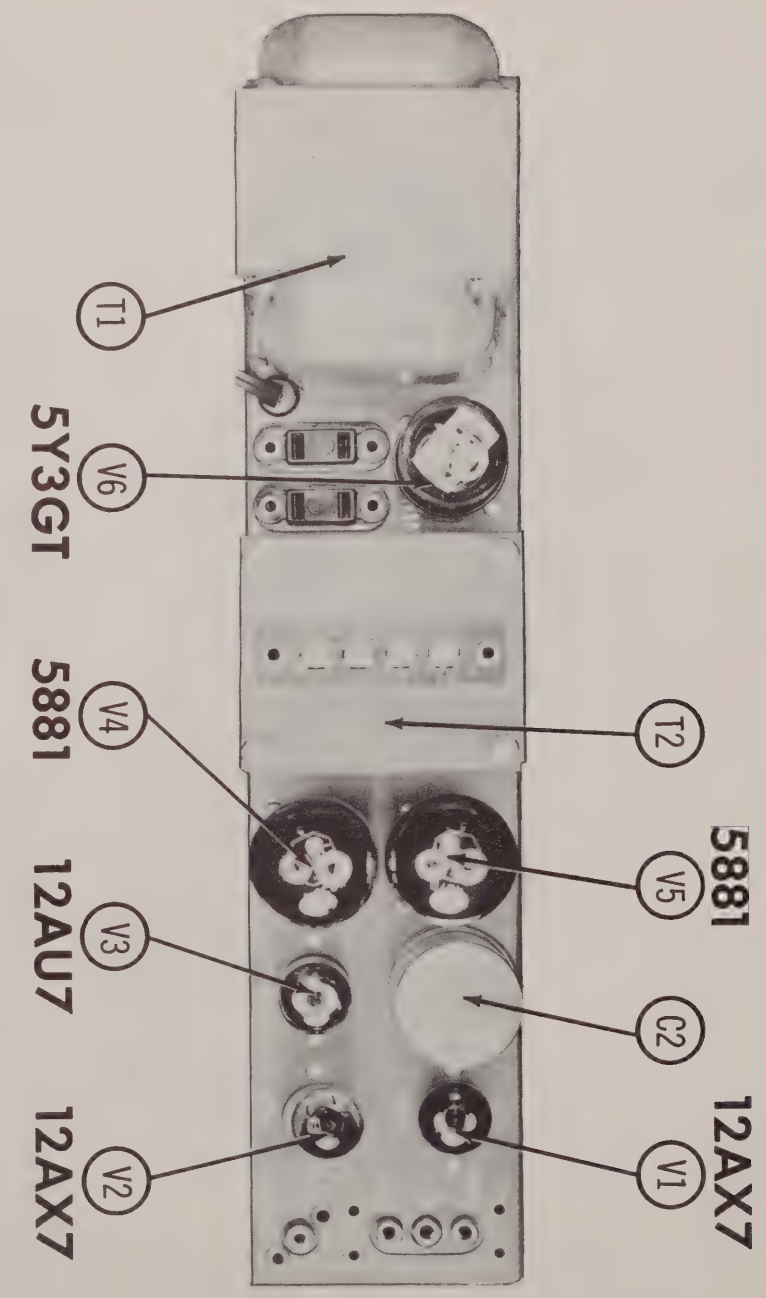
♦ Items C14A, C14B, C14C, C14D, R16A and R16B are combined in one unit. Original unit includes loudness control.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: PEDERSEN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES	
R1A	500KΩ	½	28-508	Q13-133	A47-500K-Z	B-60-S	U48	Volume	
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A	
C	Switch		Not Req.	76-1	SWE-12	Not Req.	U-26	Attach to R1A	
R2	500K	½	28-510			C1-60		Loudness - 200K & 275K)	Note 1. (Tap at
R3A	500K	½	28-506	Q13-133	A47-500K-Z	B-60	U48	Bass	
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A	
R4A	500K	½	28-506	Q13-133	A47-500K-Z	B-60	U48	Treble	
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R4A	

Note 1. Loudness control includes C14A, C14B, C14C, C14D, R16A, R16B.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PEDERSEN PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R5	47KΩ	1/2		BTS-47K	
R6	2200Ω	1/2		BTS-2200	
R7	100KΩ	1/2		BTS-100K	
R8	470KΩ	1/2		BTS-470K	
R9	1000Ω	1/2		BTS-1000	
R10	100KΩ	1/2		BTS-100K	
R11	100KΩ	1/2		BTS -100K	
R12	2. 2Meg	1/2		BTS-2. 2Meg	
R13	470KΩ	1/2		BTS-470K	
R14	10Meg	1/2		BTS-10Meg	
R15	1. 5Meg	1/2		BTS-1. 5Meg	
R16A	50KΩ	1/2		BTS-47K	
B	50KΩ	1/2		BTS-47K	
R17	1000Ω	1/2		BTS-1000	
R18	47KΩ	1/2		BTS-47K	
R19	47KΩ	1/2		BTS-47K	
R20	100KΩ	1/2		BTS-100K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PETERSEN PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R21	22KΩ	1/2		BTS-22K	
R22	47KΩ	1/2		BTS-47K	
R23	3300Ω	1/2		BTS-3300	
R24	47KΩ	1/2		BTS-47K	
R25	22KΩ	1/2		BTS-22K	
R26	470KΩ	1/2		BTS-470K	
R27	3300Ω	1/2		B TS-3300	
R28	4700Ω	1/2		BTS-4700	
R29	100KΩ	1		BTA-100K	
R30	2200Ω	1/2		BTS-2200	
R31	47KΩ	1/2		BTS-47K	Note 1
R32	47KΩ	1/2		BTS-47K	Note 1
R33	10KΩ	1		BTA-10K	
R34	470KΩ	1/2		BTS-470K	
R35	180Ω	2			
R36	470KΩ	1/2		BTS-470K	
R37	470KΩ	1/2		BTS-470K	
R38	1800Ω	1		BTA-1800	

Note 1. Match pairs.
♦ Items R16A, R16B, C14A, C14B, C14C, C14D are combined as one unit. Original unit includes loudness control (R2).

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	REPLACEMENT DATA PEDERSEN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .81A	820 VCT .096ADC	5VAC @ 2A	21VAC .150ADC	6. 3VCT @ 2. 1A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA PEDERSEN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8KΩ CT	16Ω Tap @ 8Ω,4Ω							

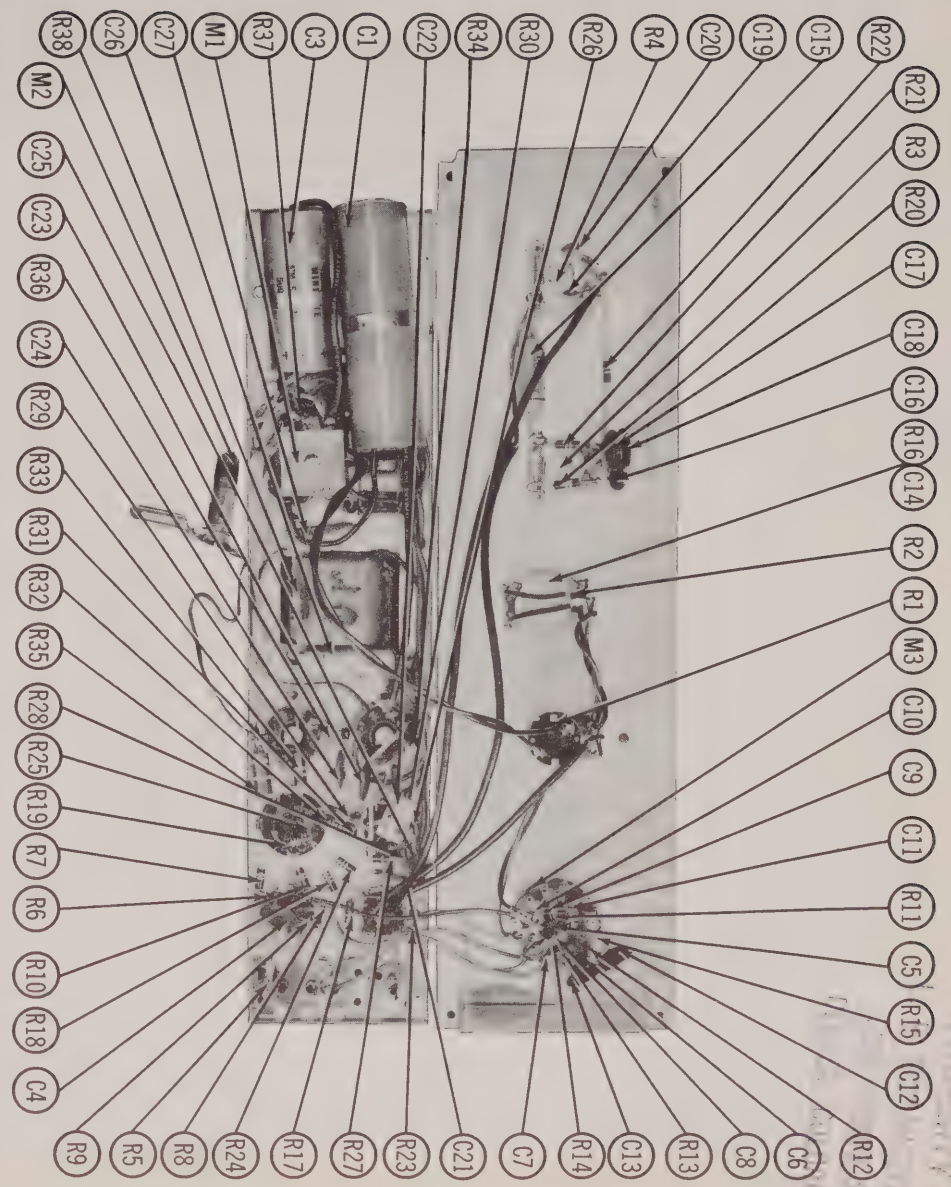
SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA PEDERSEN PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.150A		1015	A1B			154B	

MISCELLANEOUS

ITEM No.	PART NAME	PEDERSEN PART No.	NOTES
M2	Pilot Light		#47
M3	Switch		Selector & Equalizer (Rotary-Wafer Type)

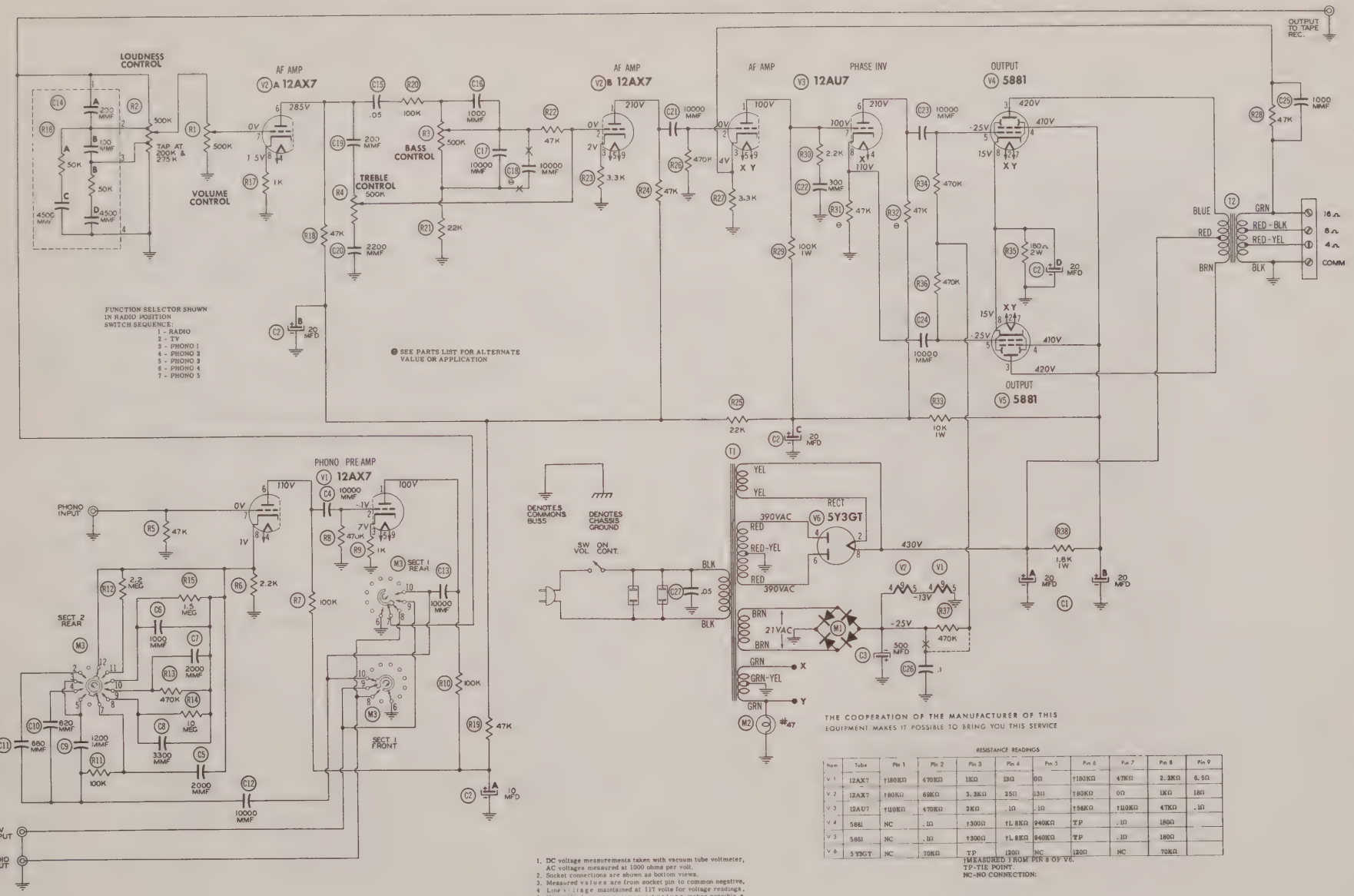
CHASSIS—BOTTOM VIEW



SET 289 FOLDER 7

PEDERSEN MODEL PCP-20

PEDERSEN MODEL PCP-20



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†180KΩ	470KΩ	1KΩ	13Ω	0Ω	†180KΩ	47KΩ	2.3KΩ	6.5Ω
V 2	12AX7	†80KΩ	69KΩ	3.3KΩ	25Ω	13Ω	†80KΩ	0Ω	1KΩ	18Ω
V 3	12AU7	†110KΩ	470KΩ	2KΩ	.1Ω	.1Ω	†56KΩ	†110KΩ	47KΩ	.1Ω
V 4	5881	NC	.1Ω	†300Ω	†1.8KΩ	940KΩ	TP	.1Ω	180Ω	
V 5	5881	NC	.1Ω	†300Ω	†1.8KΩ	940KΩ	TP	.1Ω	180Ω	
V 6	5Y3GT	NC	70KΩ	TP	120Ω	NC	120Ω	NC	70KΩ	

†MEASURED FROM PIN 8 OF V6.
TP-TIE POINT.
NC-NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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PROPERTY OF

RCA VICTOR
MODELS RP-199, 6-JM-1, -2A, B, C, D

Figure 1

GENERAL INFORMATION

R C A 6-JM-1 and 6-JM-2 Series Record Players consist of the RP-199 "Slide-O-matic" mechanism housed in plastic cabinets of various colors. These units are 45 rpm single play record players which are operated by sliding a record through a slot in the front of the cabinet and then raising the play control.

Raising the play control starts the turntable rotating and automatically permits the pickup stylus to set on the record. Since the pickup arm is not accessible it is almost impossible to get out of adjustment.

The mechanism will stop automatically after the selection has been played and the record can easily be withdrawn. Should a person wish to stop the mechanism while in operation, simply push in on play control; withdraw the record after play control drops down.

Connect this record player only to a source of 117 volts, 60 cycle, AC supply.

Manufactured by:

Radio Corporation Of America
RCA Victor Radio and "Victrola" Division
Camden, N. J.

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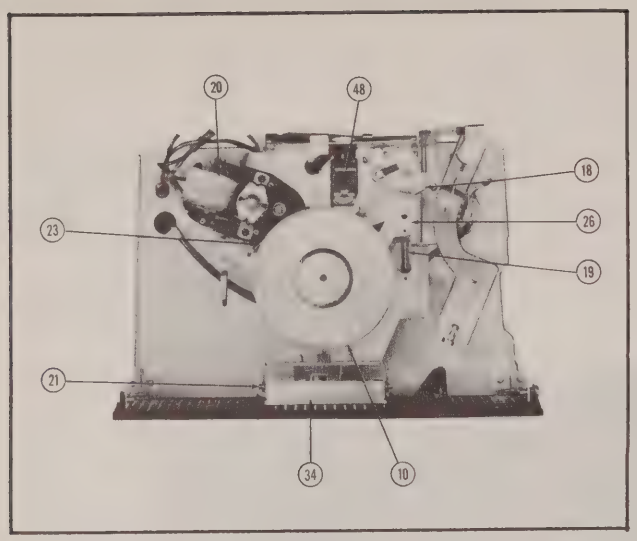

Figure 2

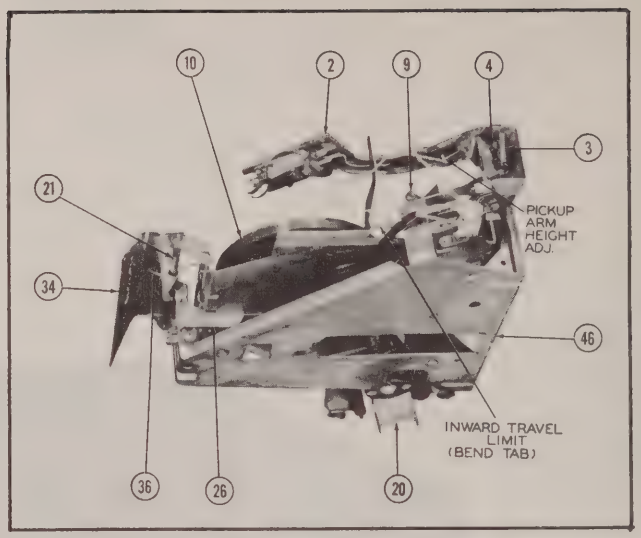

Figure 3

CYCLE OF OPERATION

The cycle of operation can best be observed by putting a record on the turntable (10) with the cabinet removed. Raise the play control (34) that is mechanically connected to the upper subassembly; the upper subassembly (which is pivoted at the rear of the lower subassembly) raises with it. This action causes the switch arm (45) extending from the bottom of the upper subassembly to actuate the power switch (48) and start the turntable (10) rotating. As the play control (34) is raised up the record on the rotating turntable (10) gently meets the pickup stylus (5) in the starting groove and the record starts playing. When the play control (34) is raised fully the subassembly becomes latched in the up position.

As the record plays, the pickup arm (2) moves inward and the pickup arm lever (7) contacts and gradually rotates the trip lever (18) inward toward the turntable.

When stylus has moved into finishing grooves of record the trip lever (18) has rotated sufficiently to make contact with the trip finger extending from the bottom of the rotating turntable (10). As the two meet, considerable force is transmitted from the rotating turntable (10) to the trip lever (18). As a result the reject lever (26) (coupled to the trip lever (18) is actuated and the latch (37), holding the upper subassembly in the up position, is released.

The mechanism stops automatically when the latch (37) is released and the upper subassembly drops the turntable (10) and the record away from the pickup stylus. At this time the power switch lever (45) actuates the power switch (48) and the mechanism stops.

The pickup arm (2) is returned to its outermost position (landing position) as a result of slight push derived from the reject lever return spring (19) directing a force through the trip lever (18) and pickup arm lever assemblies (7). There is however a tendency for the pickup arm (2) to return to its outermost position because of its weight distribution and its slightly forward tilt. The record can be pulled forward out of the slot in the cabinet to remove it from the mechanism.

ADJUSTMENTS

Tripping Adjustment-

The mechanism is provided with a tripping adjustment screw (9) that should be adjusted so the mechanism trips when the stylus is approximately 1 1/4" from the edge of the record center hole.

Pickup Inward Travel Limit-

The inward travel of the pickup stylus should be limited to 1 3/16" from the edge of the center hole, so the stylus cannot enter the record label area. This limit is governed by bending of a metal tab (25) inward or outward to the desired limits. See Figure 3.

Landing Adjustment-

The contact between the pickup arm lever and a metal tab (49) extending upward from the lower subassembly, limit the outward travel of the pickup arm.

This outermost position coincides with the landing position of the pickup. Bend the tab (49) so the pickup stylus lands approximately 2 5/8" from the record center hole (Halfway between the outer edge and the recorded section of a standard record).

Pickup Height Adjustment- See Figure 3.

The pickup height should be adjusted so the pickup raise approximately 1/8" when raising the play control (34) to move the record into play position. Adjust to desired height by bending metal tab which is under the pickup arm (2) by moving the tab upward or downward.

TROUBLES

Player Fails To Trip-

1. Check trip adjustment screw (9), improperly set.

2. Check limit tab (25), bent out too far.

3. Check reject lever (26), may bind at latch (37); reject return spring (19) weak.

4. May be bind in latch bearing (21).

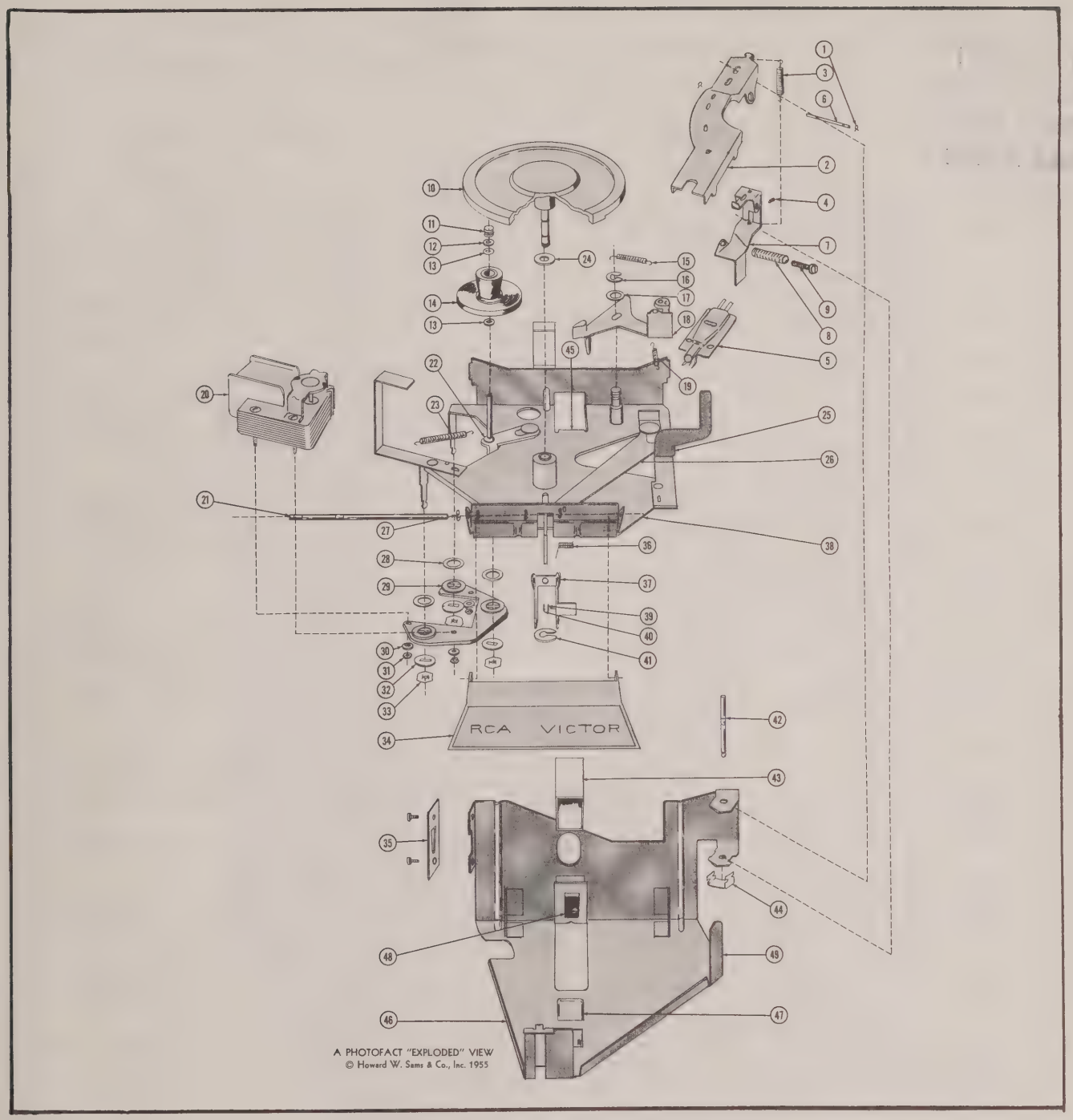

Figure 4. Exploded View of RP-199 Mechanism.

5. Check trip finger on turntable, must contact and push trip lever (18) to start cycle.

6. Check for burrs on latch (37), may jam mechanism.

Skips Grooves-

1. Check for binding in pickup arm shaft (42).

2. Check pickup arm height adjustment. See "Adjustments and Figure 3".

3. Check stylus, guard bent down too far keeping needle from hitting grooves.

4. Check pickup arm vertical pivot, set too high; (counterbalance spring (3) touches bracket).

5. Check set-screw (4), may be loose or pickup arm lever assembly may be mounted too high or too low.

6. Check pickup arm vertical mounting shaft (42), may bind and keep from pivoting.

Incorrect Landing-

1. Check tab governing pickup arm outermost position, may be improperly set or bent.

2. Check excessive friction in pick arm vertical mounting shaft (42).

3. Check vertical thrust bearing (44), may be out of place.

4. Check set screw (4), may be loose or pickup arm lever assembly may be mounted too high or too low.

"Wow" and Slow Speed-

1. Check grease and oil on idler wheel (14).

2. Check for bind in idler wheel carriage (22).

3. Check for bind in turntable bearing.

4. Check insufficient tension in idler carriage spring (23).

5. Check for excessive stylus pressure. This will cause premature record wear.

6. Check for a defective motor (20).

PARTS LIST

Ref. No.	Part No.	Description
1	10074	Washer-Retainer, "C" washer for horizontal pickup arm shaft
2	100172	Arm-Pickup complete with pickup retainer spring
3	78698	Spring-Pickup arm counterbalance spring
4	100200	Screw-Allen set screw for pickup arm horizontal mounting shaft
5	74067	Crystal pickup cartridge complete with stylus
	74230	Hardware-Washer and nut to mount sapphire assembly
	74068	Stylus-Replacement sapphire stylus and holder for crystal pickup
6	100205	Shaft-Pickup arm horizontal mounting shaft
7	100207	Lever-Pickup arm lever
8	100191	Lock spring for tripping adjustment screw
9		Screw-Tripping adjustment screw
10	100194	Turntable-Turntable complete with shaft
11	100199	Spring-Retainer sleeve for idler wheel
12	100196	Washer-Retainer washer for idler wheel
13	100198	Flat washer for idler wheel (fiber) (2 Reqd)
14	100176	Wheel-Idler wheel
15	100190	Spring-Trip lever return spring
16	77586	Washer-"C" washer for trip lever shaft
17	100202	Washer-Flat washer for trip lever
18	100195	Lever-Trip lever
19	100192	Spring-Reject lever return spring
20	100206	Motor Assembly-105/125 volts,60 cycle
21	100203	Shaft-Shaft for play control & latch assemblies
22		Lever-Idler lever assembly-carriage for idler wheel
23	100193	Spring-Idler wheel carriage assembly
24	100197	Washer-Flat washer for turntable shaft
25		Bracket-Pickup arm bracket
26		Lever-Reject lever
27	78652	Washer-"C" washer retainer for latch assembly shaft (4 Reqd)
28	100202	Washer-Flat washer over motor mounting grommet (3 Reqd)
29	100175	Grommet-Rubber motor mounting grommet (3 Reqd)
30		Lockwasher-Lockwasher for securing motor hex nuts (3 Reqd)
31		Nut-Hex nut for mounting motor to motor mounting plate (3 Reqd)
32	100184	Washer-Motor mtg. Washer rectangular hole (3 Reqd)
33	100188	Nut-Speed nut for mounting motor assembly to upper subassembly
34	100189	Latch-Latching assembly (Play Control)
35	100178	Plate-Hinge plate for upper subassembly
36	100182	Spring-Play control tension spring
37	100180	Lever-Latch lever to hold upper subassembly in play position
38	100208	Plate-Upper subassembly plate
39	100183	Washer-Flat washer for latch assembly
40	100173	Washer-"C" washer-retainer for latch assembly
41	77586	Washer-"C" washer for turntable shaft
42	100204	Shaft-Pickup arm vertical mounting shaft
43		Insulator-Switch cover
44	100179	Bearing- Thrust bearing for pickup arm vertical mounting shaft
45		Switch arm extending from the bottom of the upper subassembly
46	100209	Plate-Lower subassembly plate
47	100177	Bumper-Rubber bumper to cushion landing for upper chassis
48	100185	Switch-Power switch complete with insulator (43) and rivets
49		Pickup arm outward limit adjustment tab

CABINET REPLACEMENT PARTS

Part No.	Description
100186	Bracket-Grille-right hand-for mounting grille to cabinet
100187	Bracket-Grille-left hand-for mounting grille to cabinet
Y2749	Cabinet-Polystyrene cabinet-black-for Models 6JM1, 6JM2A, 6JM2D
Y2750	Cabinet-Polystyrene Cabinet-red-for Model 6JM2B
Y2751	Cabinet-Polystyrene cabinet-oak-for Model 6JM2C
74545	Cable-Audio cable complete with plug
100211	Connector-Closed end connector for power cord to motor winding
70392	Cord-Power cord & plug
100219	Foot-Cabinet rear foot-center
100212	Grille-Polystyrene grille-black-for Model 6JM1
100218	Grille-Polystyrene grille-red-for Model 6JM2D
100213	Grille-Polystyrene grille-white-for Model 6JM2A, 6JM2B
100214	Grille-Polystyrene grille-tan-for Model 6JM2C
79739	Grommet-Strain relief for power cord
78751	Nut-Spring for #8-32x3/8 machine screw
31048	Plug-Cable plug-part of 74545 Cable
502427	Resistor-Fixed, composition, 270,000 ohms, ±5%, 1/2 W.
100210	Screw-Hex head, #6x3/8 for mounting grille to R. H. &L. H. bracket

PHOTOFACT* Folder

*TRADE MARK

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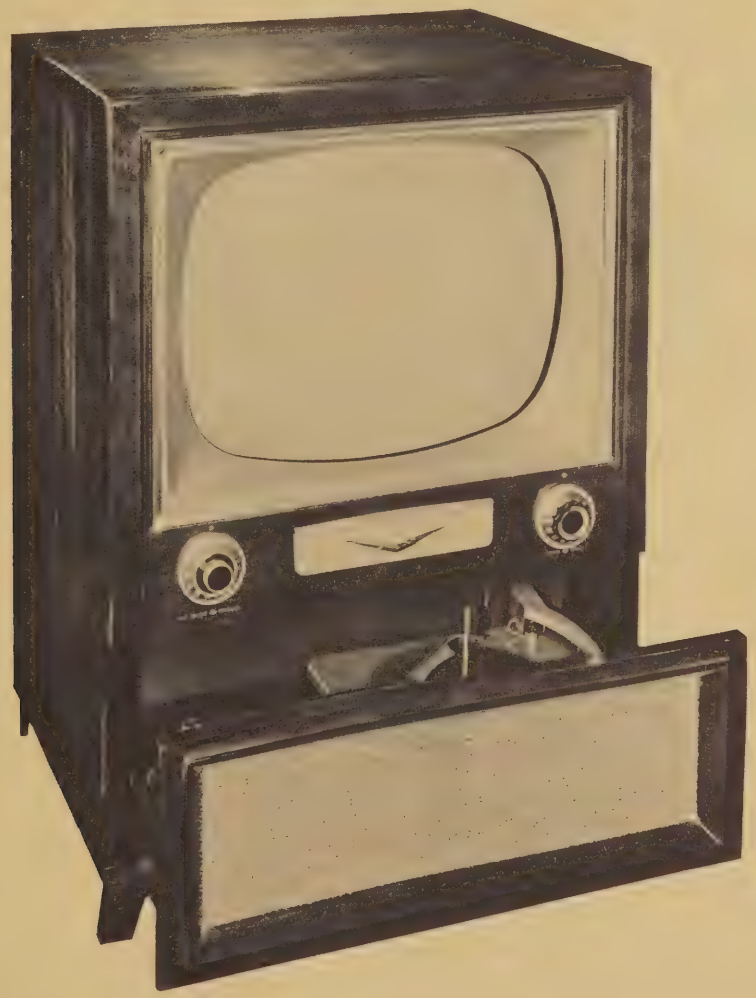

MODEL 21-S-548N

RCA VICTOR MODELS 21-S-548N, NU
(Ch. KCS92J, K & Radio Ch. RK191)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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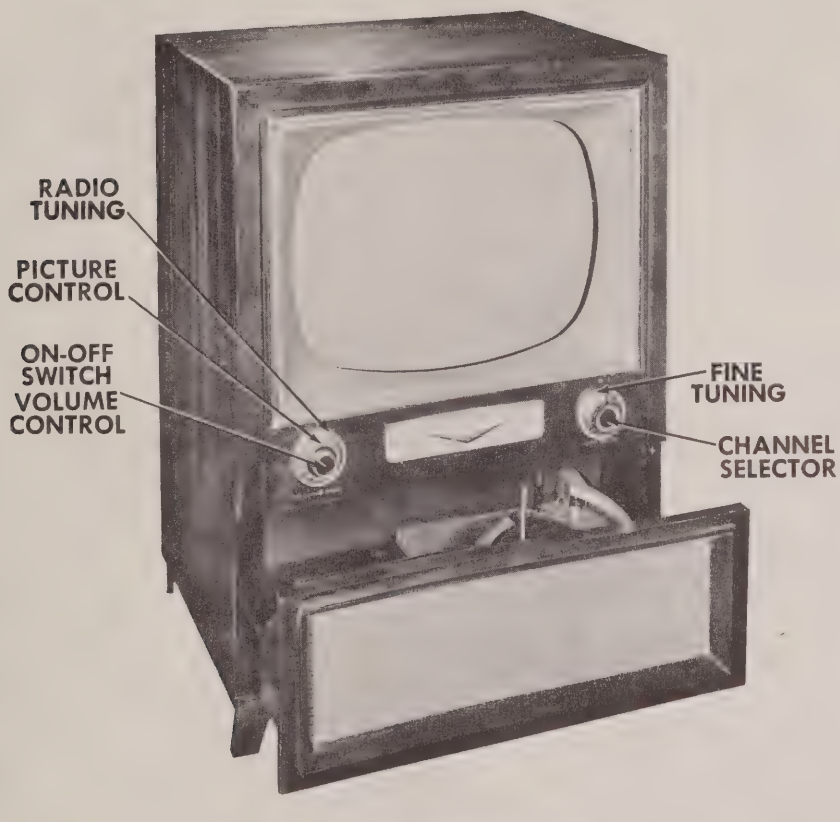

RCA VICTOR MODEL 21-S-548N

TRADE NAME	RCA Victor, Models 21-S-548N (Ch. KCS92J), 21-S-548NU (Ch. KCS92K) Radio Ch. RK191
MANUFACTURER	Radio Corporation of America, RCA Victor Television Div., Camden 2, N.J.
TYPE SET	TV-Radio-Phono Combination Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.51 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) AM Radio 540-1600KC, AM IF 455KC

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FOR SERVICE INFORMATION ON RECORD CHANGER MODEL RP-197-1, SEE PHOTOFACT SET 273, FOLDER 9.

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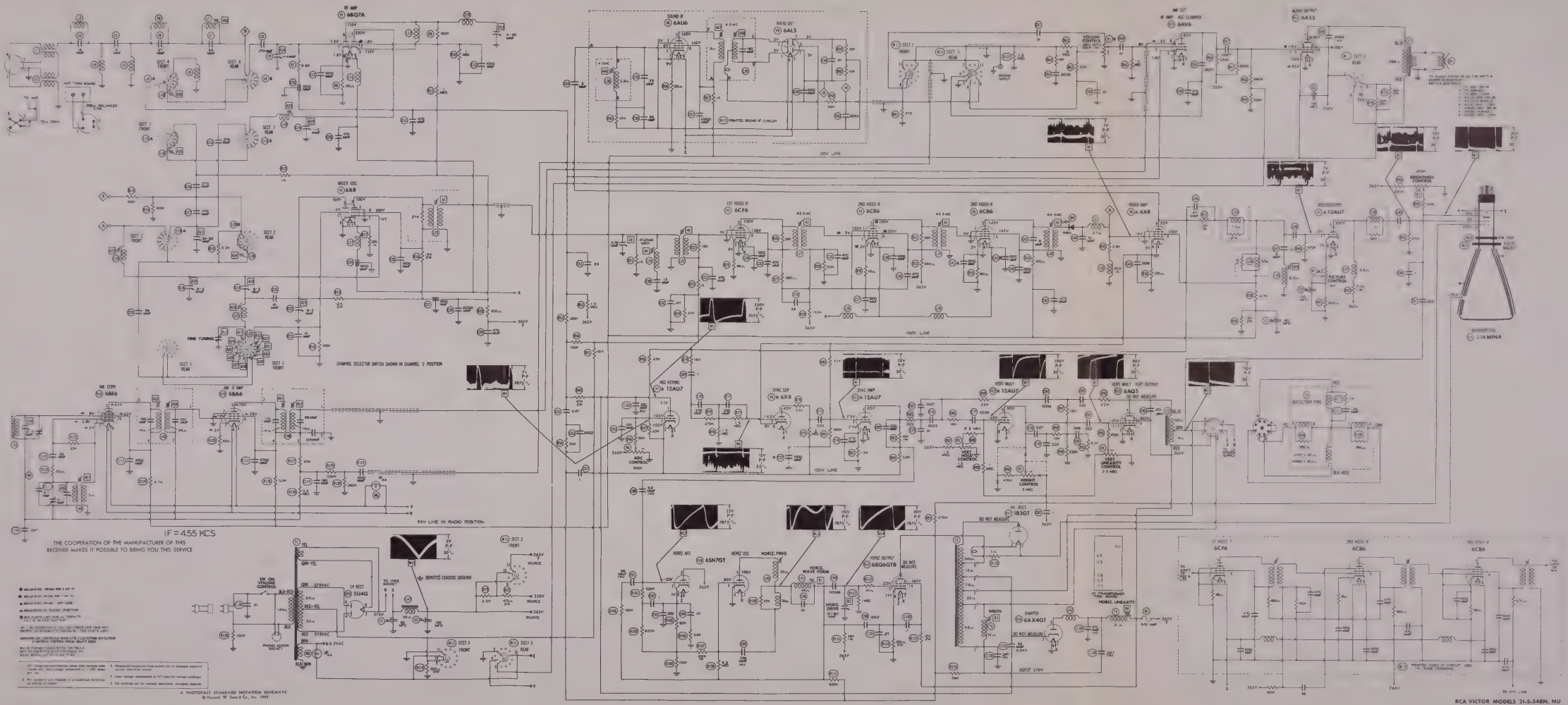
(Ch. KCS92J, K & Radio Ch. RK191)


RF AMP V1 6BQ7A
SOUND IF V6 6AU6
RATIO DET V9 6AL5
AM DET AF AMP AGC CLAMPER V4 6AV6
AUDIO OUTPUT V11 6AS5
MIXER OSC V2 6X8
1ST VIDEO IF V7 6CF6
2ND VIDEO IF V8 6CB6
3RD VIDEO IF V9 6CB6
VIDEO AMP V4 6X8
AM CONV V3 6BE6
AM IF AMP V5 6BA6
AGC KEYING V5 12AU7
SYNC SEP V6 6X8
SYNC AMP V7 12AU7
VERT MULT V10 12AU7
VERT MULT VERT OUTPUT V12 6AQ5
HORIZ AFC V14 6SN7GT
HORIZ OSC
HORIZ FREQ
HORIZ WAVE FORM
HORIZ OUTPUT V13 6BQ6GTB
HV RECT V17 1B3GT
DAMPER V16 6AX4GT
HORIZ LINEARITY
LV RECT V15 5U4G
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 2 POSITION
FINE TUNING
AGC CONTROL 500K
VERT HOLD CONTROL 5 MEG
HEIGHT CONTROL 5 MEG
VERT LINEARITY CONTROL 2.5 MEG
PICTURE CONTROL
BRIGHTNESS CONTROL
DEFLECTION YOKE
21AMP4A
150V LINE
95V LINE IN RADIO POSITION
IF = 45.5 MCS
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RCA VICTOR MODELS 21-S-548N, NU (Ch. KCS92J, K & Radio Ch. RK191)

RCA VICTOR MODELS 21-S-548N, NU
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CHASSIS TOP VIEW

RCA VICTOR MODELS 21-S-548N, NU
(Ch. KCS92J, K & Radio Ch. RK191)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from chassis. Do not remove the horizontal oscillator tube (V14) to disable the high voltage.

VIDEO IF ALIGNMENT FOR MODEL 21-S-548N

Connect the ends of a 1000Ω potentiometer across a 7.5 volt battery capable of withstanding considerable current drain. Connect the positive terminal to chassis and connect the potentiometer arm to the ungrounded side of C32. Connect the DC probe of a VTVM to the ungrounded side of C32. Common to chassis. Adjust the potentiometer arm for -4 volts on VTVM. Remove VTVM. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1500MMF Ceramic Capacitor	High side thru 1500MMF to point Ⓐ. Low side to tuner chassis. Use very short leads.	Not used	44.5MC (Unmod)	Any unused channel	Use VTVM. DC probe to point Ⓑ. Common to chassis.	A1	Attenuate generator output to maintain 3 volts at VTVM. If two peaks occur, use the one with the core at the end of the coil nearest the chassis. Adjust for maximum deflection.
2.	"	"	"	45.5MC	"	"	A2	"
3.	"	"	"	43.0MC	"	"	A3	"
4.	"	"	"	47.25MC	"	"	A4	Use sufficient generator output to produce 3 volts at VTVM. Adjust for MINIMUM deflection. Correct setting of A4 is indicated when core end is nearest end of chassis.
5.	"	"	44MC (10MC Swp)	42.5MC 45.75MC	4	Vert. Amp. thru detector (Fig. 1) to pin 5 (plate) of first video amplifier tube. Low side to chassis.	A5, A6, A7	Connect a 330Ω carbon resistor from pin 1 (grid) of third video IF amplifier to chassis. Connect 180Ω carbon resistor from plate to screen of the first video IF amplifier. Preset A5 to MINIMUM capacity. Couple a second signal generator loosely to detector probe (Fig. 1) to provide markers. Attenuate sweep generator output to maintain 0.3 to 0.5 volt peak to peak on scope for final adjustments. Adjust A6 and A7 for maximum gain with 45.75MC marker at 75% as in (Fig. 2). Adjust A5 to place 42.5MC marker at 70% on response curve as in Fig. 2. Remove detector probe, 330Ω and 180Ω resistors.
6.	"	"	44MC (10MC Swp)	42.25MC 45.0MC 45.75MC	"	Vert. Amp. thru 10KΩ to point Ⓑ. Low side to chassis.		Adjust sweep generator output for 3 to 5 volts peak to peak on scope. Couple marker generator loosely to grid of first video IF amplifier. Retouch A1, A2 and A3 to obtain response similar to Fig. 3 with sweep generator output increased 10 times, check attenuation at 41.25MC. If necessary, retouch A1 and A3 so that response at 41.25 MC is less than 5%.
7.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	42.5MC 45.0MC 45.75MC	13	"		Connect the potentiometer arm of a second bias supply to pin 5 or 6 (diode plate) of first audio amplifier (6AV6). Connect positive side to chassis. Adjust potentiometer arm for -3 volts at diode plates. Couple marker generator loosely to grid of first video amplifier. Leave the IF bias at 4 volts. Adjust sweep generator output for 3 to 5 volts peak to peak on scope. Check all channels for response similar to Fig. 3. If necessary, SLIGHTLY retouch A1 and A2 to correct any overall tilt that is essentially the same on all channels. Continue alignment with step 10 of "KRK22D Tuner Alignment".
			207MC (10MC Swp)	"	12			
			201MC (10MC Swp)	"	11			
			195MC (10MC Swp)	"	10			
			189MC (10MC Swp)	"	9			
			183MC (10MC Swp)	"	8			
			177MC (10MC Swp)	"	7			
			85MC (10MC Swp)	"	6			
			79MC (10MC Swp)	"	5			
			69MC (10MC Swp)	"	4			
			63MC (10MC Swp)	"	3			
			57MC (10MC Swp)	"	2			

VIDEO IF ALIGNMENT FOR MODEL 21-S-548NU

Same instructions as under "Video IF Alignment for Model 21-S-548N".

1. Same as Step 1 under "Video IF Alignment For Model 21-S-548N".
2. Same as Step 2 under "Video IF Alignment For Model 21-S-548N".
3. Same as Step 3 under "Video IF Alignment For Model 21-S-548N".
4. Same as Step 4 under "Video IF Alignment For Model 21-S-548N".
5. Same as Step 5 under "Video IF Alignment For Model 21-S-548N".
6. Same as Step 6 under "Video IF Alignment For Model 21-S-548N".

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	1000Ω Carbon Resistor in series with 1500 MMF ceramic capacitor	High side thru dummy antenna to rear terminal of 1N82 crystal holder. Low side to tuner chassis. Use very short leads.	44MC (10MC Swp)	42.5MC 45.75MC	UHF between 68 and 69 @800MC	Vert. Amp. thru detector (Fig. 1) to junction of 180Ω resistor and 1500 MMF capacitor at point Ⓒ. (See remarks).	A8, A9, A10, A11	Connect a 1500MMF capacitor in series with a 180Ω carbon resistor from point Ⓒ to chassis with the capacitor and connected to point Ⓒ. Loosely couple a second signal generator to detector probe to provide markers. Connect the potentiometer arm of a second bias supply to the tuner AGC terminal. Connect positive side to chassis. Adjust for -3 volts at tuner AGC terminal. Adjust sweep generator output to produce not more that 0.5 volts peak to peak on scope. Adjust A8 and A9 for maximum response similar to Fig. 4. If necessary, adjust A10 to place 45.75MC at peak of response curve. Adjust A-11 for MINIMUM tilt. Remove resistor, capacitor and detector probe from point Ⓒ.

ALIGNMENT INSTRUCTIONS (cont)

VIDEO IF ALIGNMENT FOR 21-S-548NU(CON'T)

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	42.5MC 45.0MC 45.75MC	13	Vert. Amp. thru 10KΩ to point (B). Low side to chassis.		Attenuate sweep generator output to maintain 3 volts peak to peak on scope. Couple marker generator loosely to grid of first video IF amplifier. Leave the AGC bias at -3 volts and IF bias at -4 volts. Check all VHF channels for response similar to Fig. 3. If necessary, SLIGHTLY retouch A1 and A2 to correct any overall tilt that is essentially the same on all VHF channels.
			207MC (10MC Swp)	"	12			
			201MC (10MC Swp)	"	11			
			195MC (10MC Swp)	"	10			
			189MC (10MC Swp)	"	9			
			183MC (10MC Swp)	"	8			
			177MC (10MC Swp)	"	7			
			85MC (10MC Swp)	"	6			
			79MC (10MC Swp)	"	5			
			69MC (10MC Swp)	"	4			
			63MC (10MC Swp)	"	3			
			57MC (10MC Swp)	"	2			
9.	Remove VHF sweep generator and connect UHF sweep generator to antenna terminals with 130Ω resistor in each lead. Check all UHF channels for response similar to Fig. 3. If necessary, SLIGHTLY retouch A8 and A9 to correct any overall tilt. Do not readjust A1, A2, A3, A6 or A7. Disconnect generator and bias supplies. Continue alignment with step 10 of "KRK30 VHF Tuner Alignment".							

KRK22D TUNER ALIGNMENT FOR MODEL 21-S-548N

A tuner unit which is operative and requires only minor touch-up adjustment will require no presetting of adjustment. When complete alignment is necessary make the following adjustments.
Preset A12 all the way out.
Set channel 7 to 13 oscillator slugs one turn from tight.
Adjust A7 all the way out.
Do not alter any of the antenna matching unit adjustments.
Disconnect the link from terminals "A" and "B" of the first video IF transformer and terminate the link with a 39Ω carbon resistor.
Tuner alignment as outlined below requires the use of a heterodyne frequency meter.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Direct	High side to point (D). Low side to chassis.	Not used	43.5MC (400∿Mod)	2	Vert. Amp. to point (E). Low side to chassis.	A13	Short the tuner AGC terminal to ground with a short jumper. Adjust the scope for maximum gain and the signal generator for maximum output. Adjust A13 for MINIMUM 400∿ indication on scope. Remove short from AGC terminal.
11.		RF input of heterodyne frequency meter to end of insulated wire inserted in hole provided for adjustment of A21.	"	Set Freq. meter to 227MC	8	Not used	A14, A15, A12	Connect the potentiometer arm of one of the bias supplies to the tuner AGC terminal. Connect the positive lead to tuner chassis. Adjust for -3 volts at tuner AGC terminal. Preset A14 for -3 volts at point (E). (Limits of oscillator injection are 2 - 5.5 volts). Turn the fine tuning control maximum clockwise. Adjust A15 for audible beat on frequency meter. Adjust A12 clockwise until audible beat note just begins to change. Then turn one full turn in same direction. Return fine tuning control to its mid-range position.
	Note: If channel 8 oscillator frequency cannot be reached by adjustment of A15, switch to channel 13 and adjust A16 for channel 13 oscillator frequency, then switch to channel 12, adjust A17 for channel 12 oscillator frequency. Continue down to channel 8 adjusting proper oscillator trimmer to obtain proper oscillator frequency on each channel. Also, on channel 8 adjust A15 for channel 8 frequency. Switch back to channel 13 and adjust A16 and switch back to channel 8 and adjust A15 again.							
12.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	8	Vert. Amp. to point (E). Low side to chassis.	A18, A19, A20, A21	Set A7 to maximum counter clockwise rotation. If separate marker generator is used couple it loosely to antenna terminals. Adjust scope for maximum gain and attenuate sweep generator output for a MINIMUM signal input that will produce a usable pattern on scope. Adjust A18 thru A21 for response similar to Fig. 5. Adjust A18 for maximum amplitude between markers. A19 affects frequency of band pass. A20 affects tilt (if A18 is properly adjusted) and A21 affects bandwidth.
13.	Connect the DC probe of a VTVM to point (E). Adjust A14 for -3 volts at point (E). Retouch A12, A19, A20 and A21 for response similar to Fig. 5. Adjust A18 for maximum gain at mid-point of response curve. If necessary, repeat until desired response is obtained.							
14.		Connect frequency meter as in step 11.	Not used	Freq. meter to 257MC	13	Not used	A16, A12	Turn the fine tuning control maximum clockwise. Adjust A16 for audible beat on frequency meter. SLIGHTLY overshoot the adjustment an additional turn in the same direction and then adjust A12 to again obtain an audible beat.
15.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point (E). Low side to chassis.	A22, A23	Adjust for response similar to Fig. 5. Turn off sweep generator and check the oscillator injection voltage at point (E). Voltage should be within limits (2 - 5.5 volts). If A14 required readjustment turn sweep generator back on and recheck channel 13 response. If necessary, retouch A22 and A23 to obtain desired response.
16.		Connect frequency meter in step 11.	Not used	Freq. meter to 227MC	8	Not used	A12	Check for audible beat on frequency meter, readjust A12 for proper oscillator frequency.

KRK22D TUNER ALIGNMENT FOR MODEL 21-S-548N(CONT'D)

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	"	Vert. Amp. to point ⊘. Low side to chassis.	A18, A19, A20, A21	If necessary, retouch A18 thru A21 to obtain desired response similar to Fig. 5. Turn off the generators and switch back to channel 13 and check the oscillator injection voltage at point ⊘ with VTVM. If the oscillator injection trimmer (A20) was far off, it may be necessary to repeat steps 15, 16 and 17 several times before proper setting of A20 is obtained.
18.	Connect frequency meter as in step 11.	Not used	Freq. meter to 129MC	6	Not used	A29	Set fine tuning control of its mid-range position. Adjust A29 for audible beat on frequency meter.
19. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	"	Vert. Amp. to point ⊘. Low side to chassis.	A34, A35, A36	Adjust for response similar to Fig. 5. Check oscillator injection voltage at point ⊘ with VTVM. If voltages are not within limits (2 - 5.5 volts) retouch A14. If A14 required readjustment switch receiver and generator to channel 8. If necessary, retouch A20 for response similar to Fig. 5. Recheck A12 and A15 for proper oscillator frequency as in step 11.
20. "	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"		Check for response similar to Fig. 5. If markers fall below 80% on any low band channel retouch A34, A35 and A36 for best compromise on all low band channels. Check oscillator injection voltage on each low band channel at point ⊘ with VTVM. It should be within 2 - 5.5 volts.
		69MC (10MC Swp)	67.25MC 71.75MC	4			
		63MC (10MC Swp)	61.25MC 65.75MC	3			
		57MC (10MC Swp)	55.25MC 59.75MC	2			
21. "	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	A19, A20, A21	Check for response similar to Fig. 5. If markers fall below 80% retouch A19, A20 and A21 for best compromise on all high band channels. Check oscillator injection voltage on each high band channel at point ⊘. It should be within limits of 2 - 5.5 volts.
		207MC (10MC Swp)	205.25MC 209.75MC	12			
		201MC (10MC Swp)	199.25MC 203.75MC	11			
		195MC (10MC Swp)	193.25MC 197.75MC	10			
		189MC (10MC Swp)	187.25MC 191.75MC	9			
		183MC (10MC Swp)	181.25MC 185.75MC	8			
		177MC (10MCSwp)	175.25MC 179.75MC	7			
22.	Connect frequency meter as in step 11.	Not used	Freq. meter to 257MC	13	Not used	A16	Adjust individual channel oscillator slug for audible beat on frequency meter on each channel. Check oscillator injection voltage at point ⊘ on each channel to verify that it is within limits (2 - 5.5 volts).
			251MC	12		A17	
			245MC	11		A24	
			239MC	10		A25	
			233MC	9		A26	
			227MC	8		A27	
			221MC	7		A28	
			129MC	6		A30	
			123MC	5		A30	
			113MC	4		A31	
			107MC	3		A32	
			101MC	2		A33	

KRK30 VHF TUNER ALIGNMENT FOR MODEL 21-S-548NU

A tuner unit is operative and requires only minor touch-up adjustments which will require no presetting of adjustments.
When complete alignment is necessary make the following adjustments.
Preset A12 all the way out.
Set channel 7 to 13 oscillator slugs one turn from tight.
Do not alter any of the antenna matching unit adjustments.
Disconnect the link from terminals "A" and "B" of the first video IF transformer and terminate the link with a 39Ω carbon resistor.
Tuner alignment as outlined below requires the use of a heterodyne frequency meter.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10. Direct	High side to point ⊘. Low side to chassis.	Not used	43.5MC (Unmod)	2	Vert. Amp. to point ⊘. Low side to chassis.	A13	Short the tuner AGC terminal to ground with a short jumper. Adjust the scope for maximum gain and the signal generator for maximum output. Adjust A13 for MINIMUM 400~ indication on scope. Remove short from AGC.
11.	RF input of heterodyne frequency meter to end of insulated wire inserted in hole provided for adjustment of A21.	"	Set freq. meter to 227MC	8	Not used	A14, A15, A12	Connect the potentiometer arm of one of the bias supplies to tuner AGC terminal. Connect the positive lead to tuner chassis. Adjust for -3 volts at tuner AGC terminal. Preset A14 for -3 volts at point ⊘. (Limits of oscillator injection are 2- 5.5 volts). Turn the fine tuning control maximum clockwise. Adjust A15 for audible beat on frequency meter. Adjust A12 clockwise until audible beat note just begins to change, then turn one full turn in same direction. Return fine tuning control to its mid-range position.

NOTE: If channel 8 oscillator frequency cannot be reached by adjustment of A15, switch to channel 13 and adjust A15 for channel 13 oscillator frequency, then switch to channel 12, adjust A17 for channel 12 oscillator frequency. Continue down to channel 8 adjusting proper oscillator trimmer to obtain proper oscillator frequency on each channel. Also, on channel 8 adjust A15 for channel 8 frequency. Switch back to channel 13 and adjust A16 and switch back to channel 8 and adjust A15 again.

ALIGNMENT INSTRUCTIONS (cont)

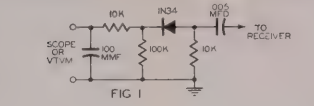


FIG 1

FIG. 2

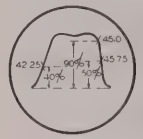


FIG. 3

FIG. 4

FIG. 5

FIG. 6

FIG. 7

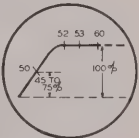


FIG. 8

FIG. 9

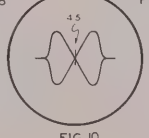


FIG. 10

KRK30 VHF TUNER ALIGNMENT FOR MODEL 21-S-548NU(CONT'D)

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	6	Vert. Amp. to point ⊘. Low side to chassis.	A18, A19, A20, A21	Set A7 to maximum counter clockwise rotation. If separate marker generator is used, couple it loosely to antenna terminals. Adjust scope for maximum gain and attenuate sweep generator output for a MINIMUM signal input that will produce a usable pattern on scope. Adjust A18 thru A21 for response similar to Fig. 5. Adjust A18 for maximum amplitude between markers. A19 affects frequency of band pass. A20 affects tilt (if A18 is properly adjusted) and A21 affects band width.
13. Connect the DC probe of a VTVM to point ⊘. Adjust A14 for -3 volts at point ⊘. Retouch A13, A19, A20 and A21 for response similar to Fig. 5. Adjust A18 for maximum gain at mid-point of response curve. If necessary, repeat until desired response is obtained.							
14.	Connect frequency meter as in step 11.	Not used	Freq. meter to 257MC	13	Not used	A16, A12	Turn the fine tuning control maximum clockwise. Adjust A16 for audible beat on frequency meter. SLIGHTLY overshoot the adjustment an additional turn in the same direction and then adjust A12 to again obtain an audible beat.
15. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point ⊘. Low side to chassis.	A22, A23	Adjust for response similar to Fig. 5. Turn off sweep generator and check the oscillator injection voltage at point ⊘. Voltage should be within limits (2 - 5.5 volts). If A14 required readjustment turn sweep generator back on and recheck channel 13 response. If necessary, retouch A23 and A23 to obtain desired response.
16.	Connect frequency meter as in step 11.	Not used	Freq. meter to 227MC	8	Not used	A12	Check for audible beat on frequency meter; readjust A12 for proper oscillator frequency.
17. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	"	Vert. Amp. to point ⊘. Low side to chassis.	A18, A19, A20, A21	If necessary, retouch A18 thru A21 to obtain desired response similar to Fig. 5. Turn off the generators and switch back to channel 13 and check the oscillator injection voltage at point ⊘ with VTVM. If the oscillator injection trimmer (A20) was far off, it may be necessary to repeat steps 15, 16 and 17 several times before proper setting of A20 is obtained.
18.	Connect frequency meter as in step 11.	Not used	Freq. meter to 129MC	6	Not used	A29	Set fine tuning control to its mid-range position. Adjust A29 for audible beat on frequency meter.
19. Two 130Ω Carbon Resistors	Across VHF antenna terminals with 130Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	"	Vert. Amp. to point ⊘. Low side to chassis.	A34, A35, A36	Adjust for response similar to Fig. 5. Check oscillator injection voltage at point ⊘ with VTVM. If voltages are not within limits (2 - 5.5 volts) retouch A14. If A14 required readjustment switch reciever and generator to channel 8. If necessary retouch A20 for response similar to Fig. 5. Recheck A12 and A15 for proper oscillator frequency as in step 11.
20. "	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"		Check for response similar to Fig. 5. If markers fall below 80% on any low band channel retouch A34, A35 and A36 for best compromise on all low band channels. Check oscillator injection voltages on each low band channel at point ⊘ with VTVM. It should be within 2 - 5.5 volts.
		69MC (10MC Swp)	67.25MC 71.75MC	4			
		63MC (10MC Swp)	61.25MC 65.75MC	3			
		57MC (10MC Swp)	55.25MC 59.75MC	2			
21. "	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	A19, A20, A21	Check for response similar to Fig. 5. If markers fall below 80% retouch A19, A20 and A21 for best compromise on all high band channels. Check oscillator injection voltage on each high band channel at point ⊘. It should within limits of 2 - 5.5 volts.
		207MC (10MC Swp)	205.25MC 209.75MC	12			
		201MC (10MC Swp)	199.25MC 203.75MC	11			
		195MC (10MC Swp)	193.25MC 197.75MC	10			
		189MC (10MC Swp)	187.25MC 191.75MC	9			
		183MC (10MC Swp)	181.25MC 185.75MC	8			
		177MC (10MC Swp)	175.25MC 179.75MC	7			
22.	Connect frequency meter as in step 11.	Not used	Freq. meter to 257MC	13	Not used	A16	Adjust individual channel oscillator slug for audible beat on frequency meter on each channel. Check oscillator injection voltage at point ⊘ on each channel to verify that it is within limits (2 - 5.5 volts).
			251MC	12		A17	
			245MC	11		A24	
			239MC	10		A25	
			233MC	9		A26	
			227MC	8		A27	
			221MC	7		A28	
			129MC	6		A29	
			123MC	5		A30	
			113MC	4		A31	
			107MC	3		A32	
			101MC	2		A33	

ALIGNMENT INSTRUCTIONS (cont)

KRK30 UHF ALIGNMENT FOR MODEL 21-S-548NU

Alignment of the UHF tuner may be performed with UHF tuner section removed from VHF tuner assembly.
Remove the UHF tuner shield for the RF adjustments. It is not necessary to remove the UHF unit for oscillator alignment.
Connect a 100Ω carbon resistor between the center conductor of cable coupling UHF tuner to first video IF transformer whose adjustment is A9. Connect other end of 100Ω to tuner chassis.
If the oscilloscope available does not have sufficient sensitivity , a suitable preamplifier may be used.
Fabricate a test dial with markers scribed on its circumference at 0, 5 and 164 degrees. The dial should be made to fit over the split gear on the tuner shaft for accurate alignment.
Locate the "0" degrees reference point with the capacitor plates fully meshed.
To make certain the plates are fully meshed, place a 1/16" shim between the stop pin on the tuner and the stop plate on the gear assembly.
Connect the high side of a VHF marker signal generator thru a 1000Ω carbon resistor to the rear terminal of the 1N82 crystal holder.
Connect the UHF marker signal generator loosely to the antenna terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
23.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	887.5MC (Use maximum sweep width)	41.25MC 43.5MC 45.75MC 887.5MC	83 (164 degree on tuning dial)	Vert. Amp. (thru preamp. if needed) to point Ⓕ . Low side to chassis.	A37, A38, A39	Adjust A37 and A38 for maximum amplitude overcoupled response curve centered at 887.5MC similar to Fig. 6. Adjust A39 until the 43.5MC marker coincides with the 887.5MC marker. The 41.25MC and 45.75MC markers should be symmetrically located on top of response curve as in Fig. 6.
24.	"	"	473.5MC (Use max. Swp. width)	41.25MC 43.5MC 45.75MC 473.5MC	14 (5 degrees on tuning dial)	"	A40, A41	Adjust until 43.5MC marker coincides with 473.5MC marker. The 41.25MC and 45.75MC markers should be symmetrically located on top of the response curve as in Fig. 7. If necessary, the oscillator coil (A41 omitted in some sets) may be adjusted or repositioned to bring the oscillator trimmer adjustment (A40) within range. Repeat steps 23 and 24 until proper responses are obtained.

25. Turn thru entire UHF range and check tracking. If the 41.25MC and 45.75MC markers fall below 70% on any UHF channel it may be necessary to bend the RF plates to correct mistracking. The plates may be bent by inserting a knife blade thru the two holes provided on the left side of the tuner. Knife the plates while tuning lower in frequency, so that tracking above the point of knifing will not be disturbed. A check of the section requiring knifing may be made by touching the plates with the knifing tool while noting the affect on response curve. Connect the DC probe of a VTVM to point Ⓕ . Common to chassis. Tune thru the entire UHF range at the same time noting the reading on the VTVM. Reading between .03 and .4 volts should be obtained. If voltages outside this limit are obtained, it indicates low B+ voltage, low or high crystal impedance or an oscillator tube outside its allowable limits. If the oscillator tube is replaced steps 23 and 24 should be repeated.

KRK30 ANTENNA MATCHING UNIT

The antenna matching unit has been properly aligned at the factory and normally will require no further adjustment. The RF unit is aligned with a particular antenna matching unit in place.
If a new antenna unit is installed, the RF unit should be realigned. Alignment should not be attempted without the proper alignment facilities.
The FM trap (A50) may be aligned without adversely affecting the alignment of the unit.
Disconnect the lead from the FM trap to the channel selector switch. Use a short jumper to connect point Ⓓ on the matching unit thru a .001MFD capacitor to pin 1 (grid) of second video amplifier (6CB6). Remove the first video amplifier tube from its socket. The matching unit cover must be in place during alignment.
Connect the ends of a 1000Ω potentiometer across a 7.5 volt battery. Connect the positive lead to chassis. Connect the potentiometer arm to the ungrounded side of C32.
Adjust the potentiometer for -5 volts of bias at ungrounded side of C32.
Scope to be used should have a sensitivity of approximately .03 volts per inch.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
26.	Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	Not used	45.75MC (400∿Mod)	Any	Vert. Amp. thru 10KΩ to point Ⓑ . Low side to chassis.	A42	Set scope for maximum gain. Adjust for MINIMUM 400∿ response on scope.
27.	"	"	"	41.25MC	"	"	A43	"
28.	"	"	50MC (20MC Swp)	50MC 52MC 53MC 60MC	"	Vert. Amp. thru detector (Fig.1) to point Ⓓ . Low side to chassis.	A44, A45	Remove the .001MFD capacitor (see instructions above) from point Ⓓ and connect a 300Ω, ½ watt carbon resistor from point Ⓓ to chassis using very short leads. Set scope for maximum gain. If a second signal generator is used to provide markers it should be connected loosely to the antenna matching unit antenna terminals. Adjust to obtain response curve similar to Fig.8. A44 affects positioning of the shoulder on the response curve at 52MC while A45 should be adjusted for maximum amplitude at 53MC and above as shown in Fig. 8. If necessary, repeat adjustments until no further improvement is noted. Remove 300Ω resistor and detector probe. Restore connection between point Ⓓ and the channel switch. Replace the first video amplifier tube in its socket.

ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
29.	.01MFD	High side to point Ⓑ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓖ. Common to chassis.	A46, A47	Attenuate generator output to maintain 5 volts at VTVM. Adjust for maximum deflection.
30.	"	"	"	"	DC probe to point Ⓑ. Common to chassis.	A48	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 29 and 30 until no further improvement is noted.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
29.	.01MFD	High side to point Ⓑ. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any non-interfering channel	Vert. Amp. to point Ⓖ. Low side to chassis.	A46, A47	Disconnect stabilizing capacitor C58. Adjust for curve of maximum amplitude and symmetry similar to Fig. 9.
30.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A48	Reconnect stabilizing capacitor C58. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 10. SLIGHTLY retouch A47 of maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
31.	1500MMF	High side to point Ⓑ. Low side to chassis.	Not used	4.5MC (400∿Mod)	Any non-interfering channel	Vert. Amp. thru detector (Fig.1) to pin 6 (plate) of 12AU7 (V7). Low side to chassis.	A49	Adjust generator output for 0.5 volts at point Ⓑ. Short pin 1 (grid) of third video IF amplifier (6CB6) (V5) to chassis. Adjust A49 for MINIMUM 400∿ indication on scope. Remove short from pin 1 of V5.

ALTERNATE 4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust the fine tuning control for clearest picture and best sound. Note whether a 4.5MC beat is present in picture. If a 4.5MC beat is present, turn the fine tuning control slightly clockwise to emphasize the 4.5MC beat interference and then adjust A49 to minimize the 4.5MC beat in the picture.

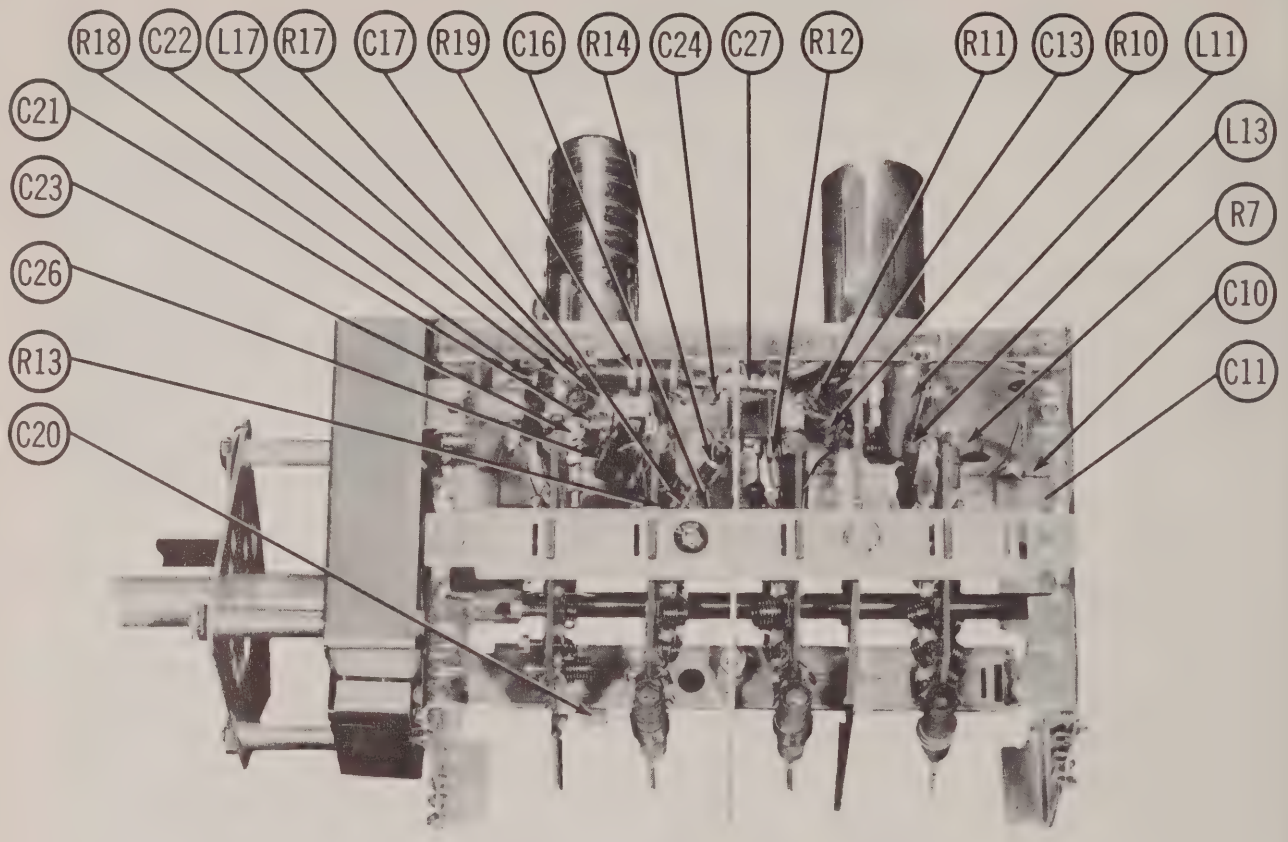
FM TRAP ADJUSTMENT

The FM trap adjustment (A50) may be made in the field when interference due to a strong FM station occurs. Tune in a Station on which the interference is observed and adjust A50 to minimize the interference.

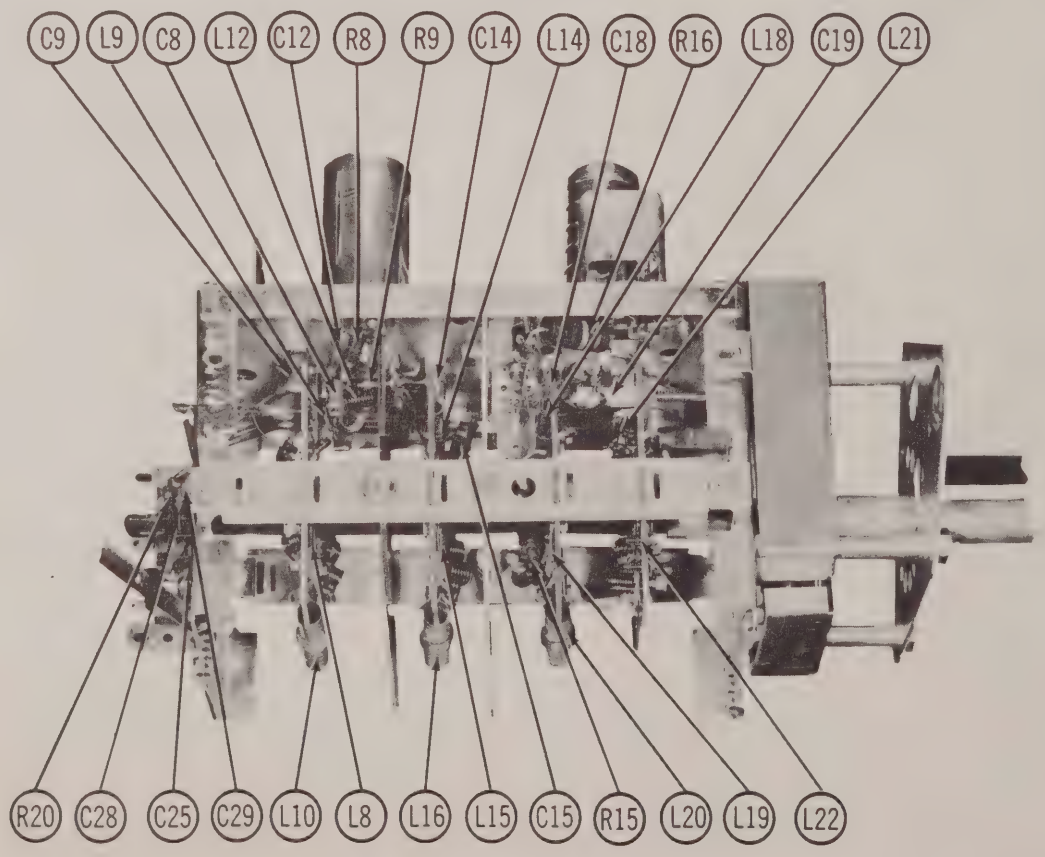
RADIO ALIGNMENT

Turn selector switch to "Radio" position. Set volume control for maximum.

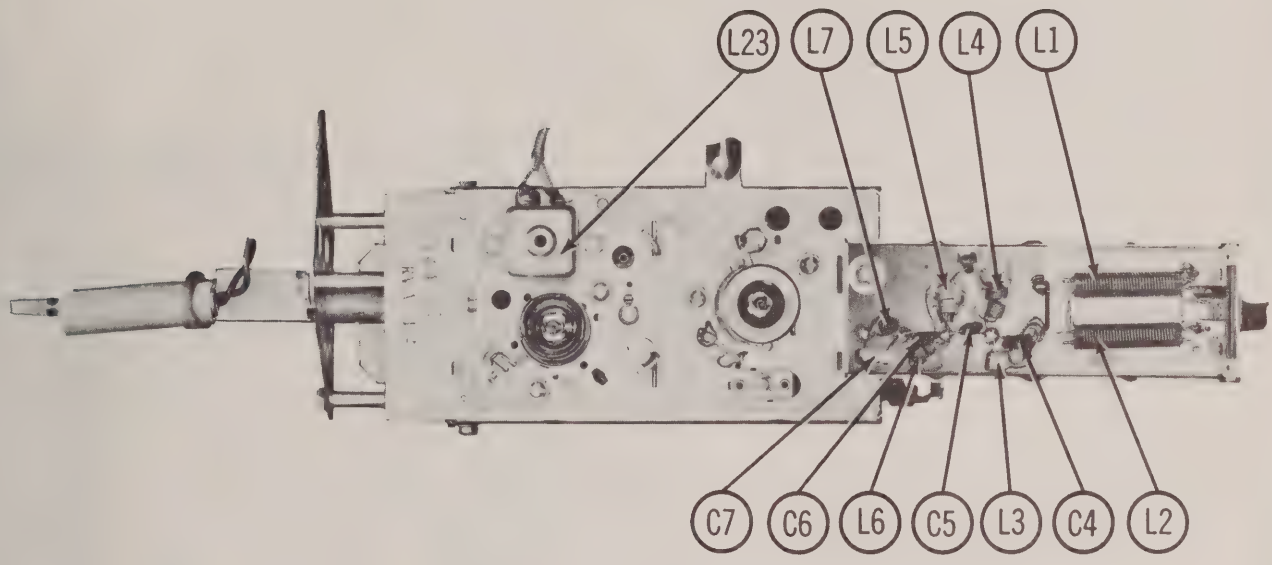
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
32.	.01MFD	High side to pin 1 (grid) of 6BA6 (V19). Low side to chassis.	455KC (400∿Mod)	AM	1620KC (Tuning gang fully open)	Across voice coil	A51, A52	Adjust for maximum deflection.
33.	"	High side to pin 7 (grid) of 6BE6 (V18). Low side to chassis.	"	"	"	"	A53, A54	"
34.		Antenna coil (see remarks)	1620KC	"	Tuning gang fully open	"	A55	Fashion loop of several turns of wire and radiate signal into antenna coil. Adjust for maximum deflection.
35.		"	1400KC	"	Tune to 1400KC signal	"	A56	
36.		Not used	600KC	"	Tune to signal of AM radio station	Not used	A57	Adjust A57 for maximum sound while rocking tuning gang.



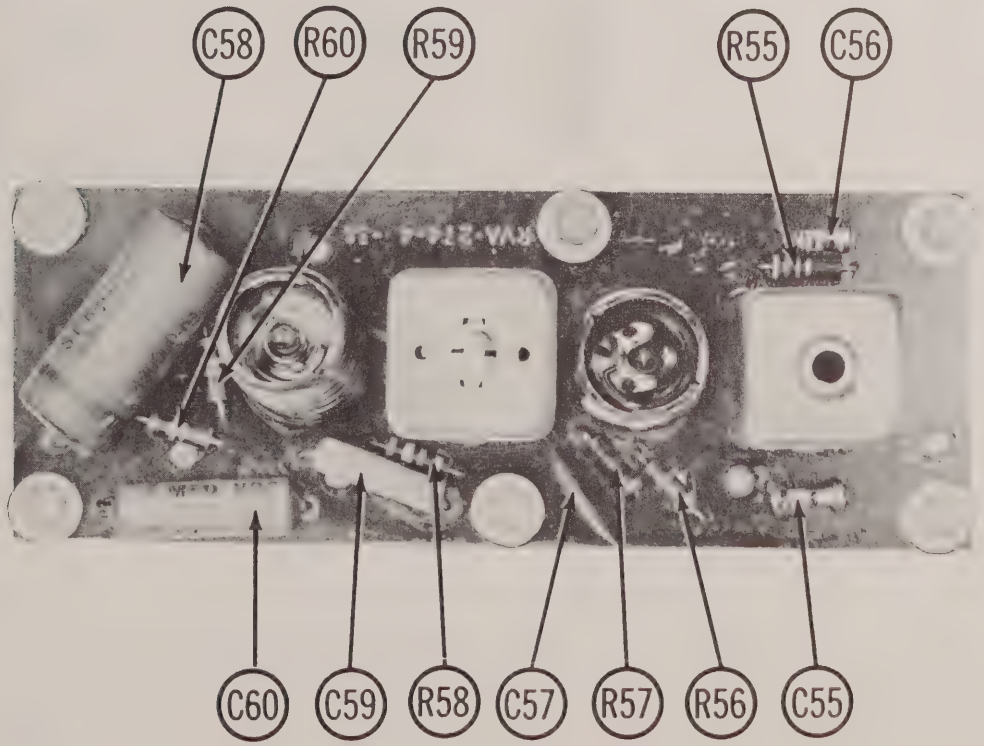
RF TUNER-RIGHT SIDE



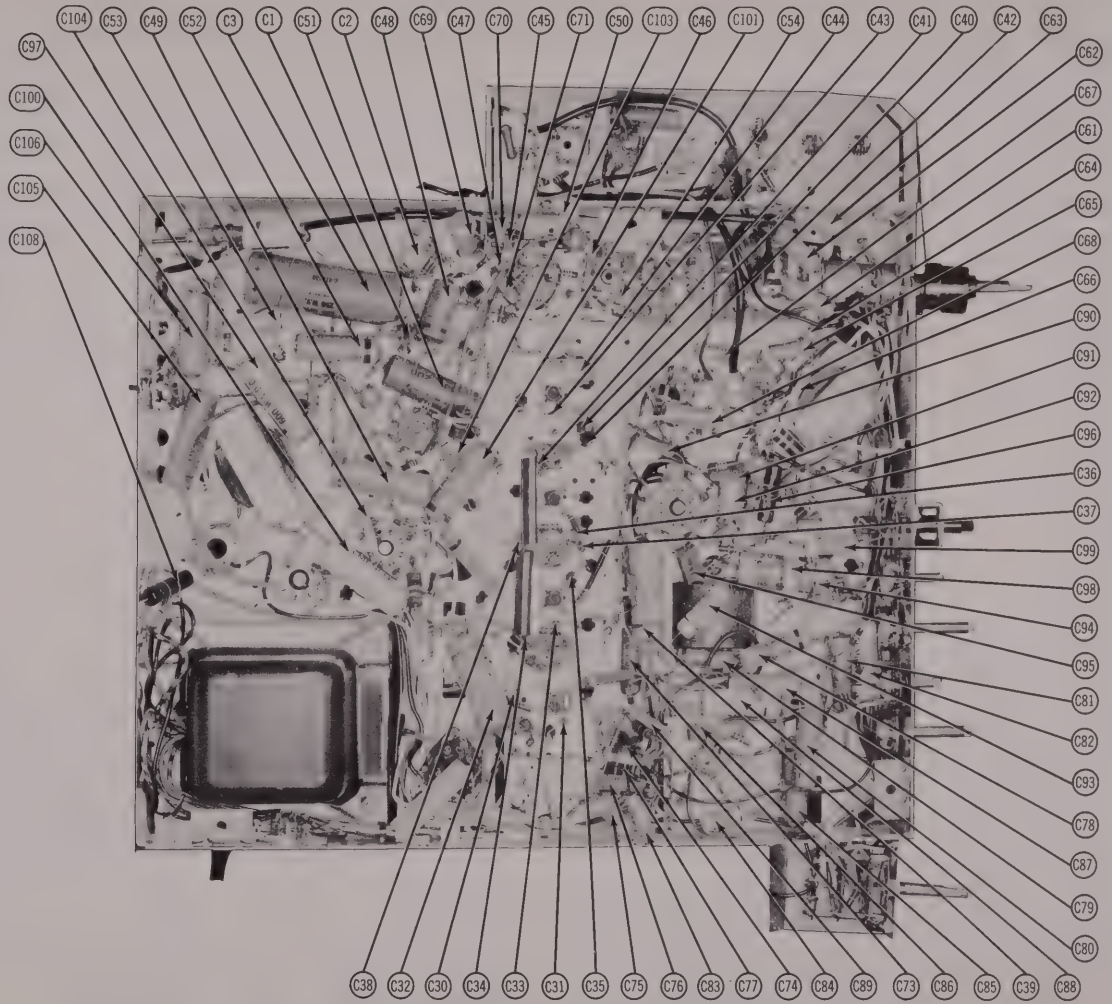
RF TUNER-LEFT SIDE



RF TUNER-TOP VIEW

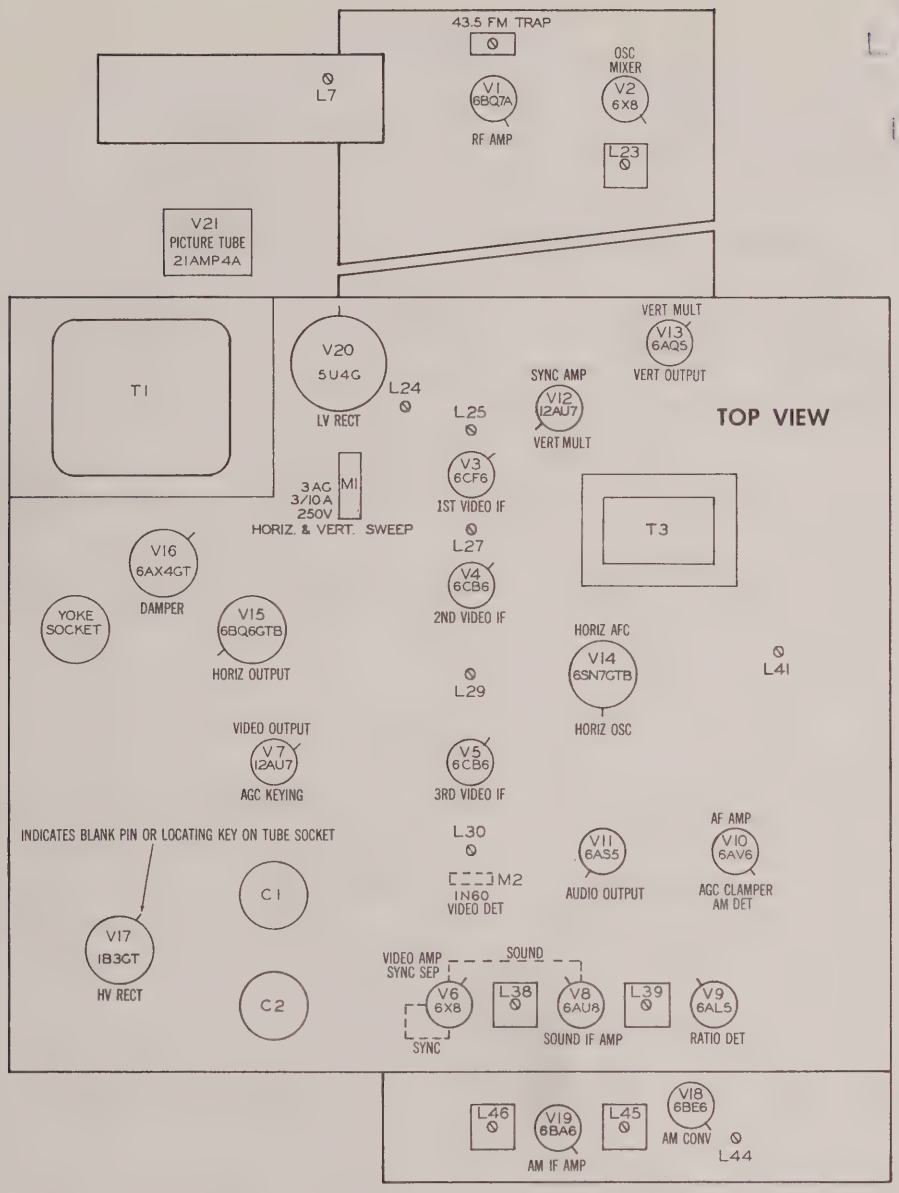


SOUND IF PRINTED CIRCUIT SUB-CHASSIS



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V20

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V11
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V7, V21
Has pic, no sound - V8, V9, V10, V11
Overloaded picture - V7, V10

SYNC FAILURE
No vert. sync - V12, V13
No horiz. sync - V12, V14
No vert. or horiz. sync - V6, V12

SWEEP FAILURE
No raster, has sound - V14, V15, V16, V17, V21, Fuse (M1)
No vertical deflection - V12, V13
Poor vert. linearity or foldover - V12, V13
Poor horiz. linearity or foldover - V14, V15, V16
Narrow picture - V14, V15, V16, V17, V20
Vert. off freq. - V12, V13
Horiz. off freq. - V12, V14

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage."

INSUFFICIENT SWEEP

Check by substitution V15, V16 and V20. Check adjustments B2, B3 and B4. Check T2, T4A, C99, C101, R114, R115 and other associated components.

DRIVE LINES

Check by substitution V15 and V16. Check adjustments B2 and B4. Check T2, T4A, C99, R115 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V15 and V16. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines."

PIE CRUST EFFECT

Check by substitution V14, V15 and V16. Check C92, C93, R102 for open. Check L40, L41, R109, C96 and other associated components.

XMAS TREE EFFECT

Check by substitution V14, V15 and V16. Check T2 and T4 for internal arcing. Check L40, L41, C91, C95, C96, R109, R108 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V12 and V13. Check waveform W9.

If Satisfactory	If Unsatisfactory
Check T3, T4B, C86 and other associated components.	Check C77, C81, R2, R91, R116, R88 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V12 and V13. Check height and vertical linearity controls for proper operation. Check C82, R90, T3 and other associated components.

COMPRESSED AT BOTTOM

Check by substitution V12 and V13. Check R2, R90, C77, C81 and other associated components.

COMPRESSED AT TOP

Check by substitution V12 and V13. Check R4, R95, C81, T3, T4B and other associated components.

FOLDS

Check by substitution V12 and V13. Check C78, C79, C80, R93, R92, R94, T3 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V6 and V12. Check C69, C70, C71, C73, R79, R83, R84 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V12. Check C76, C77, R87, R88, R5 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Substitute V14. Check C89, C90, C95, C96, L40, R108 and other associated components.

HORIZONTAL BENDING

Check by substitution V6, V12 and V14. Check components associated with V14.

VIDEO

LOSS OF VIDEO

Check by substitution V6 and V7. Check C46, C48, C49, R38, R37, R42, L37 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A49. Check video IF Alignment.

POOR CONTRAST

Check by substitution V6 and V7. Check contrast control. Check C46, C48, C49, L33, L34, L36 and other associated components.

NEGATIVE PICTURE

Check by substitution V6 and V7. Check picture tube. Check C48, C49, L33, L36 and other associated components.

SMEAR

Check by substitution V6 and V7. Check L31, L32, L33, L34, L36, C48, C49 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5, V6 and V7 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C61, C64, C67, C68, C3, R66, R67, R70, R71, T7, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A48 for minimum buzz. If still unsatisfactory, check audio IF Alignment.

DISTORTED

Follow procedure outlined under "Weak or no Sound."

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, substitute V20. Check B+ filter and decoupling network.

SMALL AND/ ON DIM PICTURE

Substitute V20. Check B+ filter and decoupling network.

TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V14, V15, V16 and V17. Check fuse, M1. Check waveform W14.

If Satisfactory	If Unsatisfactory
Check T2, T4A, T5, T6, C104, C105, C106, C100, R115 and other associated components.	Check L40, L41, C95, C96, C99, R108, R110, R109 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V15, V16 and V20. Check adjustments B2, B3 and B4. Check C99, R115, T2, T4A and other associated components.

BLOOMING

Check by substitution V15, V16, V17 and V20. Check T2, T4A, R115, R114, C101, C99 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video."

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or no Sound."

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6, V7 and V11. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set." Check M11 switch for TV position.

KEYSTONE EFFECT

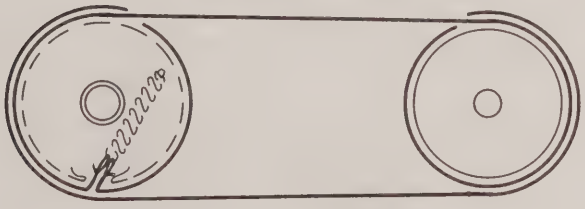
Check T4 and its associated components.

INTERMITTENT STREAKS

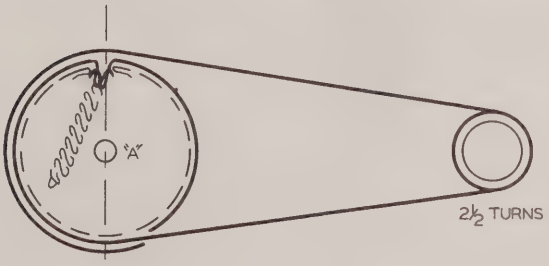
Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

TUNING GANG FULLY CLOSED



RADIO DRIVE CORD STRINGING



PULLEY P2 POSITIONED WITH STUD AT TOP WHEN SHAFT "A" IS FULLY COUNTER CLOCKWISE.

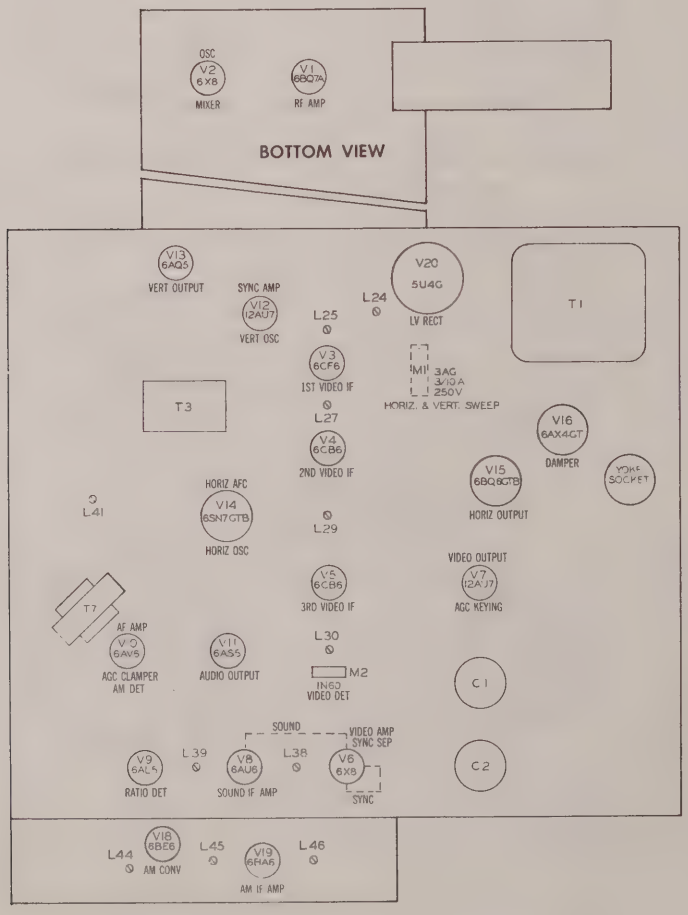
UHF DRIVE CORD STRINGING

RESISTANCE MEASUREMENTS

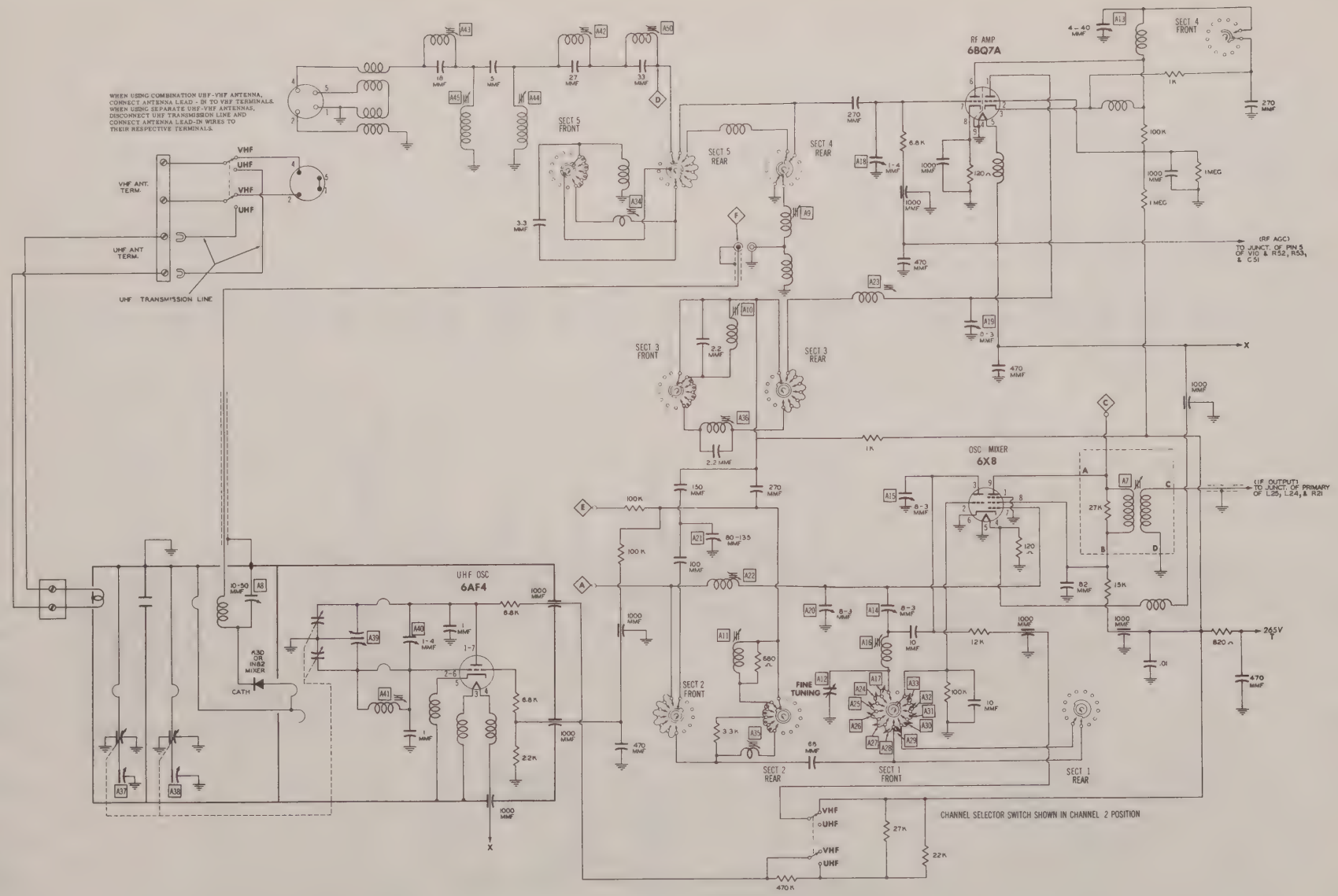
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	†1.8KΩ	500KΩ	†600KΩ	0Ω	.1Ω	†600KΩ	260KΩ	120Ω	0Ω
V 2	6X8	0Ω	100KΩ	†13KΩ	.1Ω	0Ω	0Ω	100KΩ	†16KΩ	†16KΩ
V 3	6CF6	35KΩ	68Ω	0Ω	.1Ω	▲680Ω	▲680Ω	0Ω		
V 4	6CB6	80KΩ	▲18Ω	0Ω	.1Ω	†700Ω	†700Ω	INF		
V 5	6CB6	.2Ω	180Ω	.1Ω	0Ω	■500Ω	■500Ω	0Ω		
V 6	6X8	0Ω	3Meg	■1.2Meg	0Ω	.1Ω	120Ω	3.9KΩ	■4.7KΩ	■17KΩ
V 7	12AU7	200KΩ	■20KΩ	10KΩ	.1Ω	.1Ω	†7.5KΩ	470KΩ	900Ω	0Ω
V 8	6AU6	47KΩ	0Ω	0Ω	.1Ω	■1KΩ	■1KΩ	120Ω		
V 9	6AL5	80KΩ	80KΩ	.1Ω	0Ω	10KΩ	0Ω	10KΩ		
V 10	6AV6	10Meg	0Ω	.1Ω	0Ω	260KΩ	1Meg	†330KΩ		
V 11	6AS5	10KΩ	480KΩ	.1Ω	0Ω	480KΩ	♦†2.7KΩ †500Ω	♦†3KΩ †900Ω		
V 12	12AU7	■14KΩ	33KΩ	1.2KΩ	.1Ω	.1Ω	▲1.8Meg	2.5Meg	0Ω	0Ω
V 13	6AQ5	2Meg	0Ω	.1Ω	0Ω	†600Ω	†40Ω	2Meg		
V 14	6SN7GT	1.3Meg	†38Ω	230KΩ	250KΩ	†40KΩ	0Ω	.1Ω	0Ω	
V 15	6BQ6GTB	NC	.1Ω	TP	†10KΩ	1Meg	TP	0Ω	100Ω	TOP CAP ▲13Ω
V 16	6AX4GT	NC	NC	800KΩ	NC	†65Ω	NC	.1Ω	0Ω	
V 17	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲353Ω
V 18	6BE6	33KΩ	.6Ω	♦.1Ω	♦0Ω	■4.7KΩ	■4.7KΩ	4Meg		
V 19	6BA6	4Meg	0Ω	♦.1Ω	♦0Ω	■3.3KΩ	■3.3KΩ	100Ω		
V 20	5U4G	NC	40KΩ	NC	24Ω	NC	22Ω	NC	40KΩ	
V 21	21AMP4A	0Ω	470KΩ	PIN 10 ▲300KΩ	PIN 11 †260KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN IN "TV" POSITION UNLESS OTHERWIDE NOTED.

▲ MEASURED FROM PIN 7 OF V4.
† MEASURED FROM PIN 2 OF V20.
■ MEASURED FROM 150V LINE.
♦ MEASURED IN "RADIO" POSITION.
▲ MEASURED FROM PIN 3 OF V16.
NC - NO CONNECTION
TP - TIE POINT



TUBE PLACEMENT CHART



UHF-VHF TUNER KRK30 USED ON CHASSIS KCS92K

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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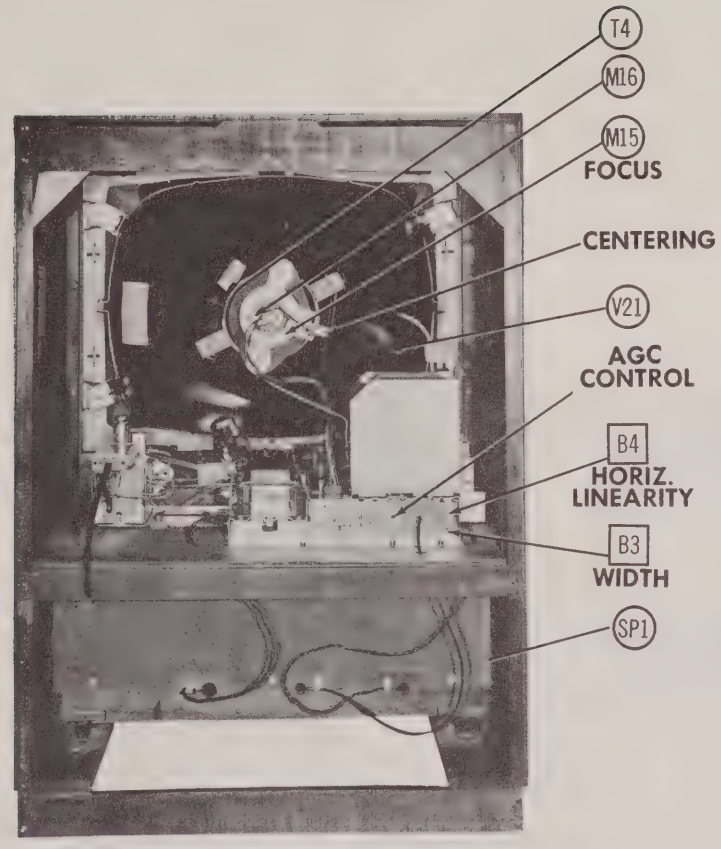
ALTERNATE TUNER SCHEMATIC



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal frequency control clockwise until picture loses sync, then slowly turn control counter clockwise until the picture pulls into sync. Continue turning horizontal frequency control two full turns. If picture does not remain in sync the following adjustments should be made:

1. Turn the horizontal drive trimmer (B2) maximum clockwise, then back one full turn. Preset width coil slug (B3) so that the core stud is flush with the inside of chassis. Adjust the waveform slug (B1) maximum counter clockwise.
2. Turn the horizontal frequency control counter clockwise. Several diagonal bars should appear before the circuit begins to "motorboat". Adjust B1 for 3 or 4 diagonal bars before motorboating occurs, when the horizontal frequency control is turned counter clockwise from the point where the picture just loses sync. If the picture cannot be made to sync properly after the above adjustments are made it will be necessary to perform the horizontal waveform adjustments.

HORIZONTAL WAVEFORM ADJUSTMENTS

Turn B2 maximum clockwise and then back-off one full turn. Preset B3 so that core stud is flush with inside of chassis.
Connect a jumper across the horizontal phase coil (L41) and turn the horizontal frequency control until picture pulls into sync.
Remove short from across L41.
Connect the low capacity probe of a scope to junction of L40, L41 and R109. Low side to chassis.
Turn the horizontal frequency control clockwise until picture loses sync, then counter clockwise until picture falls into sync.
Adjust B1 for broad and narrow peaks of equal height as in Fig. 11. If necessary, keep the picture in sync while adjusting B1 by turning the horizontal frequency control. Remove the scope.
Turn the horizontal frequency control until the picture loses sync with diagonal bars sloping down to the right.
Slowly turn horizontal frequency control counter clockwise noting the number of diagonal bars present just before the picture locks in sync. One and one-half to three bars should be present just before picture pulls into sync.
Turn B2 counter clockwise as far as possible without the presence of a vertical white line near the center of the picture.
Turn the brightness control fully clockwise and adjust the width slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.
Readjust brightness control for normal brightness.
Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right. The picture should lock in with one and one-half to three bars present. The picture should not lose sync as the horizontal frequency control is turned two full turns counter clockwise from the lock in point.
When the picture falls out of sync, between two and five bars should be present before motorboating occurs.

AGC CONTROL ADJUSTMENT

Connect the vertical amplifier of the oscilloscope to pin 6 (plate) of 12AU7 (V7A).
Tune in a strong station and adjust scope to observe video waveform. Rotate the AGC control (R6) clockwise until sync tips begin to be compressed, then counter clockwise until the compression just disappears.

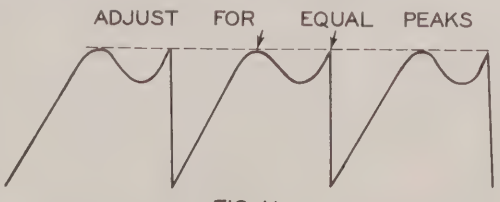
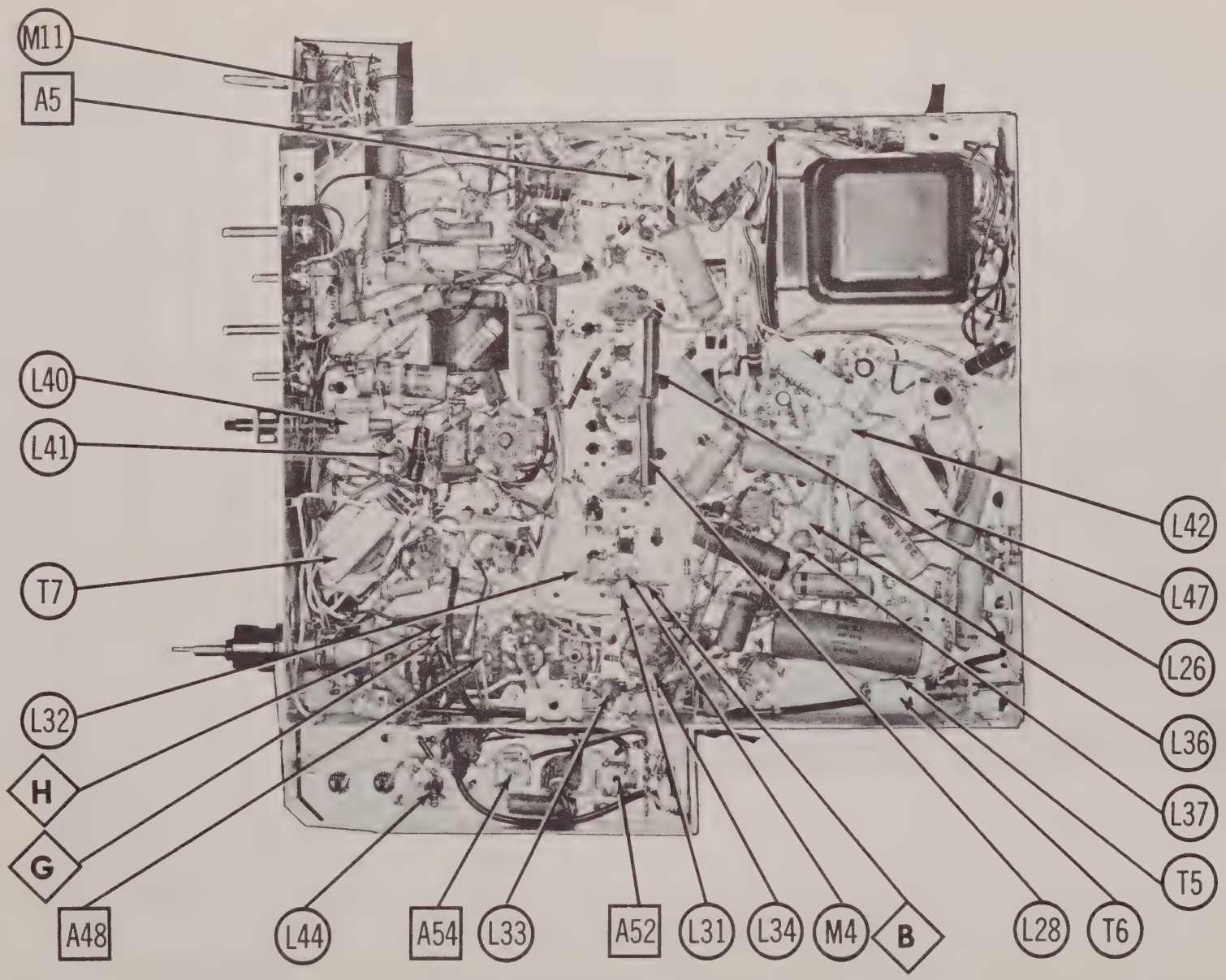


FIG. 11



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		RCA Victor PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V2	Mixer-Osc.	6X8	6X8	9AK	
V3	1st. Video IF Amp.	6CF6	6CF6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Amp.-Sync Sep.	6X8	6X8	9AK	
V7	Video Output-AGC Keying	12AU7	12AU7	9A	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Det.	6AL5	6AL5	6BT	
V10	AF Amp.-AGC Clamper-AM Det.	6AV6	6AV6	7BT	
V11	Audio Output	6AS5	6AS5	7CV	
V12	Sync Amp.-Vert. Mult.	12AU7	12AU7	9A	
V13	Vert. Mult.-Vert. Output	6AQ5	6AQ5	7BT	
V14	Horiz. AFC-Horiz. Osc.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GTB	6BQ6GTB	6AM	
V16	Damper	6AX4GT	6AX4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	AM Converter	6BE6	6BE6	7CH	
V19	AM IF Amp.	6BA6	6BA6	7BK	
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	RCA Victor PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V21	21AMP4A ① 21AMP4	21AMP4A ① 21AMP4	21ACP4A / 21AMP4A ① 	21AMP4A ② 21AMP4	21AMP4A ① 21AMP4	12N 12N	① Aluminized ② Silver screen

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	RCA Victor PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▰80	400	79147			FP375	TM-D80-450	D-344	
B	▲80	200							
C2A	▰100	400	79146			FP247	TM-2027	D-343	
B	▲30	50							
C3	100	250	79314			TC1265	TD-100-450	MT-25100	
C4	18			TCZ-18	NP0K-180				
C5	5			TCZ-5	NP0A-050	ZT-555			
C6	27			TCZ-27	NP0K-270				
C7	33			TCZ-33	NP0K-330	ZT-5433			
C8	270		57199	D6-271	GP2K-271	UC-5327			
C9	1-4		76532	829-4	3115-01-10	CT551			
C10	1000		77084	MFT-1000					
C11	470		77293	D6-471	831-471	UC-5347			
C12	1000		77252	DD-102	801-001	DC-521			
C13	1000		77252	DD-102	801-001	DC-521			
C14	1-4		76532	829-4	3115-01-10	CT551			
C15	270		75199	D6-271	GP2K-271	UC-5327			
C16	270		75199	D6-271	GP2K-271	UC-5327			
C17	470		75198	D6-471	GP2K-471	UC-5347			
C18	.8-3		77151	829-3	3115-01-0R5	CT565A			
C19	.8-3		77913	829-3	3115-01-0R5	CT565A			
C20	.68		71504	TCZ-R68	NP0A-R68				
C21	10		33098	D6-100	GP1K-100	UC-531			
C22	.8-3		77151	829-3	3115-01-0R5	CT565A			
C23	10		77865	TCZ-10	NP0A-100	ZT-541			
C24	1000		77084	MFT-1000					
C25	470		77293	DD-471	831-471	UC-5347			
C26	1000		77252	DD-102	801-001	DC-521			
C27	1000		77084	MFT-1000					
C28	10000		73960	DD-103	811-01	DC-511			
C29	470		77293	DD-471	831-471	UC-5347			
C30	15		39044	TCN-15	N750K-150	NT-5415			
C31	470		77293	DD-471	813-471	UC-5347		K-1347	
C32	.47	200	73787			PT4047	IMP2-P47	3302047	
C33	470		78622	DD-471	831-471	UC-5347		K-1347	
C34	1000		77252	DD-102	801-001	DC-521		K-1210	
C35	470		77293	DD-471	831-471	UC-5347		K-1347	
C36	470		78622	DD-471	831-471	UC-5347		K-1347	
C37	1000		77252	DD-102	801-001	DC-521		K-1210	
C38	1000		77252	DD-102	801-001	DC-521		K-1210	
C39	.39	200	79318					3306039	
C40	1000		78623	DD-102	801-001	DC-521		K-1210	
C41A	1000		79319	DD2-102	812-001	DCD-521		K-1210	
B	1000							K-1210	
C42	470		77293	DD-471	831-471	UC-5347		K-1347	
C43	9		79164						
C44	10		33098	D6-100	GP1K-100	UC-541		K-1410	
C45	.0039	400	79018	D6-402	GP2-333-402	PT624	IMP6-D4	3306239	
C46	47		39042	TCN-47	N750K-470	NT-5447			
C47	6		77364						
C48	.1	600	79149	DF-104		PT601	IMP6-P1	330601	
C49	.1	600	73557	DF-104		PT601	IMP6-P1	330601	
C50	100		39396	D6-101	GP1K-101	UC-531		K-1310	
C51	.33	200	76994					3306033	
C52	.047	600	73592	DF-104		PT6147	IMP6-S47	3306147	
C53	.0022	600	73595	D6-222	GP2-333-222	PT6222	IMP6-D22	3306222	
C54	3		76507	TCN-3R3	N750A-3R3				
C55	39		79323		N330L-390				
C56	56		79324	TCN-56	N750L-560	NT-5456			
C57	10000		73960	DD-103	811-01	DC-511			

PROPERTY OF
L. F. D'ANGELANTONI
DENVER, COLORADO

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	NOTES
C58	.47	200	79148			PT4047	IMP2-P47	3302047	
C59	1000	500	53300	D6-102	GP2L-103	MC355		K-1310	
C60	.0033	400	79315	D6-332	GP3-333-332	PT6233	IMP6-D33	3306333	
C61	.01	300	79034	D6-103	GP3-333-103	PT611	IMP4-S1	330411	
C62	.0033	400	79315	D6-332	GP3-333-332	PT6233	IMP6-D33	3306333	
C63	.01	300	79034	D6-103	GP3-333-103	PT611	IMP4-S1	330411	
C64	.01	300	79034	D6-103	GP2-333-103	PT611	IMP4-S1	330411	
C65	.0033	600	79316	D6-372	GP3-333-372		IMP6-D8	3306327	
C66	270		47617	D6-271	GP2K-271	UC-5327		K-1327	
C67	.0027	600	79398	D6-272	GP3-333-272	UC-5327	IMP6-D3	3306327	
C68	.0033	1000	79808	DD35-803		PT6218	CT6D-D83		
C69	.1	400	79351	DF-104		PT401	IMP4-P1	330401	
C70	330	500	79640	D6-331	GP2K-331	UC-5333		K-1333	
C71	330	500	79640	D6-331	GP2K-331	UC-5333		K-1333	
C72	1000		77352	DD-102	801-001	DC-531	IMP6-D1	K-1210	Note 1
C73	.033	400	79353	DF-303		PT6133	IMP6-S3	3306133	
C74	470		79823	DD-471	813-471	UC-5347		K-1347	
C75	.01	400	79351	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C76	.0033	600	79316	D6-332	GP3-333-332	PT6233	IMP6-D33	3306233	
C77	.0039	600	79796					CH-1239	
C78	.047	600	79345						
C79	.022	200	79925						
C80	.068	200	79016						
C81	.033	600	79798	DF-303	617-02	PT6133	IMP6-S33	3306133	
C82	.1	400	79351	DF-104		PT401	IMP4-P1	330401	
C83	.0027	600	79599			PT6133	IMP6-S3	3306133	
C84	.0056	400	79788					CH-1256	
C85	.033	600	79396						
C86	.001	3000	79880	DD16-102	3KV-102	PT6211	CT16-D1	3116-.001	
C87	.033	600	79796	DF-303	617-03	PT6133	IMP6-S33	3306133	
C88	.1	400	79351	DF-104		PT401	IMP4-P1	330401	
C89	330	500	58371	D6-331	GP2K-331	UC-5333		K-1333	
C90	82	1000	78474	DD30-820		MCL462		K-1462	
C91	68	500	78475	DD-680	1R5KV-680	MCM5D5		K-1465	
C92	.1	400	79351	DF-104		PT401	IMP4-P1	330401	
C93	.033	400	79562	DF-303	617- 02	PT6123	IMP4-S22	3304123	
C94	.47	200	79787			PT4047	IMP2-P47	3302047	
C95	330	2000	76476						
C96	.01	600	79594						
C97	.1	400	79357	DF-104		PT601	IMP6-P1	330601	
C98	.0013	600	76995					CH-1212	
C99	.00068	600	76479	DD-681	1R5KV-681	MCK368		K-2368	
C100	.1	600	79357	DF-104		PT601	IMP6-P1	330601	
C101	.27	200	79786			PT4025	IMP2-P25	3302025	
C102	82	3500	78235	DD60-820				K-4482	
C103	820	1000	79021	DD-821	1R5KV-821			K-2321	
C104	270	1000	79023	DD-271		PT6215	CT16-D5	3116-.05	
C105	.047	1000	79397			PT6215	CT6D-D5	3116-.05	
C106	.047	1000	79397					3116-.05	
C107	120								
C108	.01	600		D6-103	GP3-333-103	PT611	IMP6-S1	330611	
C109	.047	400	79353	DF-104		PT4147	IMP4-S47	3304147	
C110	56		75784	D6-560	GP1K-560	UC-5456		K-1456	
C111	4.7		77471						
C112	4700		79473	DD-472	811-0047	DC-525		C-1347	
C113	4700		79473	DD-472	811-0047	DC-525		C-1347	
C114	180		79235	D6-181	GP2K-181	UC-5318		K-1318	
C115	1000		75616	D6-102	GP2L-103	UC-531	IMP6-D1	K-1210	

Note 1. Not used in some versions.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No	IRC PART No	CLAROSTAT PART No	CENTRALAB PART No	MALLORY PART No	INSTALLATION NOTES
R1A	10KΩ	½	79707			F1-25		Picture - Panel
B	1Meg	½				R2-57		Volume - tapped ⑥ 250KΩ rear
C	Switch					KS-1		Attach to R1B
R2A	5Meg	½	79871	QU-141	A47-5Meg-S	AB-37	SU-67	Height
B	Shaft		Not Req.	8Q	FKH-1/4	AK-1	Not Req.	Attach to R2A
R3A	200KΩ	½	78139	QU-129	A47-200K-S	AB-46	U-43	Brightness
B	Shaft		Not Req.	Not Req.	KS2-3	AK-4	Not Req.	Attach to R3A
R4A	2.5Meg	½	78807	BU-239	A47-2.5Meg-S	AB-83	SU-565	Vert. Linearity
B	Shaft		Not Req.	TM-2KT7	FKH-1/4	AK-1	Not Req.	Attach to R4A
R5A	1.5Meg	½	78210	QU-138	A47-1.5Meg-S	AB-742	U-155	Vert. Hold
B	Shaft		Not Req.	Not Req.	KS2-3	AK-4	Not Req.	Attach to R5A
R6A	500KΩ	½	78808	BU-139	A47-500K-S	AB-59	SU-50	AGC
B	Shaft		Not Req.	TM-2KT7	FKH-1/4	AK-1	Not Req.	Attach to R6A

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R7	6800Ω	½	504268	BTS-6800	
R8	120Ω	1	503113	BTS-120	
R9	100KΩ	½	504410	BTS-100	
R10	1Meg	½	503510	BTS-1Meg	
R11	1Meg	½	503510	BTS-1Meg	
R12	1000Ω	½	503220	BTS-1000	
R13	100KΩ	½	503410	BTS-100K	
R14	100KΩ	½	503410	BTS-100K	
R15	3300Ω	2	502233	BTS-3300	
R16	15KΩ	2	523315	BTS-15K	
R17	120Ω	½	503113	BTS-120	
R18	100KΩ	½	504410	BTS-100K	
R19	12KΩ	2	523312	BTS-12K	
R20	820Ω	½	503182	BTS-820	
R21	1000Ω	½	503210	BTS-1000	
R22	15KΩ	½	503315	BTS-15K	
R23	1000Ω	½	503210	BTS-1000	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R24	47KΩ 5%	½		BTS-47K 5%	
R25	68Ω 5%	1	502066	BTS-68 5%	
R26	56KΩ 5%	½	502356	BTS-56K 5%	
R27	68Ω	1	503168	BTS-680	
R28	150KΩ 5%	½	503415	BTS-150K 5%	
R29	150KΩ 5%	½	502415	BTS-150K 5%	
R30	18Ω 5%	1	502018	BTS-18 5%	
R31	56KΩ 5%	½	502356	BTS-56K 5%	
R32	680Ω	1	503168	BTS-680	
R33	180Ω 5%	1	502118	BTS-180 5%	
R34	470Ω	1	502147	BTS-470	
R35	5900Ω 5%	1	502247	BTS-5900 5%	
R36	150Ω	2	503115	BTS-150	
R37	12KΩ	1	512312	BTA-12K	
R38	4700Ω	1	502247	BTS-4700	
R39	15KΩ	2	523315	BTS-15K	
R40	470KΩ	½	503447	BTS-470K	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No	IRC PART No	NOTES
R41	820Ω	½	502182	BTS-820	
R42	7500Ω 5%	1	512375	BTA-7500 5%	
R43	470KΩ	½	503447	BTS-470K	
R44	220KΩ	½	503422	BTS-220K	
R45	150KΩ	½	503415	BTS-150K	
R46	56KΩ	½	502356	BTS-56K	
R47	33KΩ	½	502333	BTS-33K	
R48	47KΩ	½	503447	BTS-47K	
R49	47KΩ	2	523547	BTS-47K	
R50	150KΩ 5%	½	503415	BTS-150K 5%	
R51	100KΩ 5%	½	502410	BTS-100K 5%	
R52	180KΩ 5%	½	502418	BTS-180K 5%	
R53	1.8Meg 5%	½	502815	BTS-1.8Meg 5%	
R54	33KΩ	½	503333	BTS-33K	
R55	47KΩ	½	503347	BTS-47K	
R56	13ΩΩ	½	503112	BTS-130	
R57	1000Ω	½	502220	BTS-1000	
R58	39KΩ	½	503339	BTS-39K	
R59	10KΩ 5%	½	502310	BTS-10K 5%	
R60	10KΩ 5%	½	503310	BTS-10K 5%	
R61	47KΩ	½	502347	BTS-47K	
R62	33KΩ	½	502333	BTS-33K	
R63	1.8Meg	½	1769	BTS-1.8Meg	
R64	18KΩ	½	502318	BTS-18K	
R65	10Meg	½	502810	BTS-10Meg	
R66	330KΩ	½	503433	BTS-330K	
R67	820KΩ 5%	½	503482	BTS-820K 5%	
R68	390KΩ 5%	½	503439	BTS-390K 5%	
R69	330KΩ 5%	½	502433	BTS-330K 5%	
R70	22KΩ	½	523322	BTS-22K	
R71	18KΩ	2	522318	BTS-18K	
R72	470Ω	2	523147	BTS-470	
R73	2200Ω	½	502222	BTS-2200	
R74	18KΩ	½	502318	BTS-18K	
R75	270KΩ	½	502427	BTS-270K	
R76	1.5Meg	½	502515	BTS-1.5Meg	
R77	1.5Meg	½	502515	BTS-1.5Meg	
R78	33KΩ	½	502339	BTS-39K	
R79	1.2Meg	½	502512	BTS-1.2Meg	
R80	33KΩ	½	502333	BTS-33K	
R81	390KΩ	½	502439	BTS-390K	
R82	1200Ω	½	502212	BTS-1200	
R83	10KΩ	1	513310	BTA-10K	
R84	3900Ω 5%	½	502339	BTS-3900 5%	
R85	22KΩ	½	502322	BTS-22K	

ITEM No	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R86	18KΩ	½	502318	BTS-18K	
R87	1.2Meg	½	502512	BTS-1.2Meg	
R88	8.2Meg	½	502582	BTS-8.2Meg	
R89	10Meg	½	502810	BTS-10Meg	
R90	470KΩ	½	503447	BTS-470K	
R91	270KΩ	½	503427	BTS-270K	
R92	15KΩ	½	502315	BTS-15K	
R93	8200Ω	½	502282	BTS-8200	
R94	330KΩ	½	502433	BTS-330K	
R95	470KΩ	½	503447	BTS-470K	
R96	270KΩ 5%	½	503323	BTS-270K 5%	
R97	18KΩ 5%	½	502318	BTS-18K 5%	
R98	22KΩ	½	502233	BTS-22K	
R99	560Ω	½		BTS-560	
R100	560Ω	½		BTS-560	
R101	330KΩ	½	503433	BTS-330K	
R102	82KΩ 5%	½	502382	BTS-82K 5%	
R103	820KΩ	½	503482	BTS-820K	
R104	150KΩ 5%	½	502415	BTS-150K 5%	
R105	3900Ω	½	502239	BTS-3900	
R106	180KΩ	½	502418	BTS-180K	
R107	100KΩ 5%	1	512410	BTA-100K 5%	
R108	6.8Meg	½	503568	BTS-6.8Meg	
R109	47KΩ	½	502347	BTS-47K	
R110	39KΩ	1	513339	BTA-39K	
R111	820KΩ	½	503482	BTS-820K	
R112	1Meg	½	503510	BTS-1Meg	
R113	47Ω	½	503047	BTS-47	
R114	100Ω	2	74015		
R115	10KΩ	2	522310	BTS-10K	
R116	56KΩ	½	502356	BTS-56K	
R117	100Ω			BTS-1000	
R118	1Ω	1	79958		
R119	100Ω	10	79703	PWH10-500	
R120	100KΩ	½	502410	BTS-100	
R121	1.5Meg	½	31449	BTS-1.5Meg	
R122	33KΩ	½	502333	BTS-33K	
R123	100Ω	½	502120	BTS-100	
R124	470ΩΩ	½	502247	BTS-4700	
R125	100Ω	½	502100	BTS-100	
R126	3300Ω	½	502233	BTS-3300	
R127	47KΩ	½	502347	BTS-47K	
R128	3.3Meg	½	503533	BTS-3.3Meg	
R129	330KΩ	½	503433	BTS-330K	
R130	560KΩ	½	502456	BTS-560K	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC 1	RATING SEC. 2	REPLACEMENT DATA RCA Victor PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Stancor PART No	Thordarson PART No	Triad PART No.
T1	117VAC	956VCT	5VAC	79889				P-8333		R-81RC①
	⑤1.5A	.260ADC	⑥ 3A							
	SEC. 3	SEC. 4	SEC. 5							
	6.3VAC ⑧ 6A									

① Parallel and phase 6.3V ⑥ 6A windings for Sec. #3; tape 6.3V ⑥ 1.2A.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	RCA Victor PART No.	Halldorson PART No.	Merit PART No	RCA TYPE No.	Rom PART No.	Stancor PART No	Thordarson PART No	Triad PART No.
T2	Horiz. Output Trans.	79870	FB41P① *			X094 ① *	A-8244 *	F1X-80 *	D-50① *
T3	Vert. Output Trans.	79143	21802②④	A-3038② ⑤		V307②④	A-8145②⑤	26873②⑤	A-100X②⑤
T4A	Yoke(90°) Horiz. (12MH)	78869 ⑤	DF80S ⑥	MDF-91			DY-13A ⑥	Y-14 ⑥	Y-50-14⑥
B	Vert.(39MH)								
T5	Horiz. Lin. Coil (1.8 - 8.5MH)	79442	RF900⑦ ⑩	MWC-5⑦		20R15	WC-8	WC-33	WC-12 ⑦
T6	Width Coil (2.7-17MH)	79144	RF900 ⑩ ⑦	MWC-8 ⑦		20R16	WC-8	WC-18 ⑦	WC-12 ⑦

① Drill new mounting hole(s).
② Connect as auto transformer.
③ Mount on tuner bracket.
④ Use original mounting bracket.
⑤ Yoke assembly includes male plug, capacitors C106, resistors R99, R100 and R117.
⑥ Connect horizontal damping network across terminals #3 and #7. Use original network, if necessary.
⑦ Enlarge mounting hole.
⑧ Connect to terminal #3 and #4.
⑨ Connect to coded red and blue terminals.
⑩ Connect to terminals #1 and #3.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL (CONNECTIONS)	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Rom Replacement Connections	Stancor Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	9			9	5	5	9	
4	7			7	4	4	7	
3	7			7	3	3	7	
2	3			3	2	2	3	
1	1			1	1	1	1	
Connect Width Coil Here →	1 & 2	1 & 3		1 & 3	1 & 2	1 & 2	1 & 3	

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI	IMPEDANCE SEC	REPLACEMENT DATA RCA Victor PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T7	4.3KΩ	3.3Ω	79159	Z1006	A-3019	A-3849	26S60 ①	S-5Z	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V C IMP	REPLACEMENT DATA RCA Victor PART No	QUAM PART No.	NOTES
SP1	8"	PM	3.3Ω	74664	8AZ1	

COILS (RF-IF)

ITEM No.	USE	DC RES PRI	DC RES SEC.	REPLACEMENT DATA RCA Victor PART No	MEISSNER PART No	MERIT PART No	MILLER PART No	NOTES
L1	Ant. Match. Trans.	.6Ω	.6Ω	78396				Note 1
L2	Ant. Match. Trans.	.6Ω	.6Ω	78396				Note 1
L3	IF Trap	0Ω		78396				Note 1
L4	Ant. Shunt Coil	0Ω		78396				Note 1
L5	Ant. Shunt Coil	0Ω		78396				Note 1
L6	IF Trap	0Ω		78396				Note 1
L7	FM Trap	0Ω		78396				Note 1
L8	Ant. Coils	0Ω		78802				Includes stator complete with rotor, coils(also L9, L10)
L9	Ant. Coil	0Ω		78802				Channel 13-part of complete assembly
L10	Ant. Coil	0Ω		78803				Channel 6 - part of complete assembly
L11	Fil. Choke	0Ω		77206				
L12	Neut. Coil	0Ω		78563				
L13	IF Trap Coil	.3Ω		79466				
L14	RF Coil	0Ω		77821				Channel 13 - part of complete assembly #78801
L15	RF Coils	0Ω		78801				Includes stator complete with rotor, coils (also L16, L17) CIS, C18, C17, C36, R12, R34, R15
L16	RF Coil	0Ω		73460				Channel 6 - part of complete assembly #78801
L17	Fil. Choke	0Ω		78067				
L18	Mixer Grid Coil	0Ω		77819				Channel 13-part of complete assembly #78800
L19	Mixer Grid Coils	0Ω		78800				Includes stator complete with rotor, coils (also L18, L20), C18, C17, C36, R12, R34, R15
L20	Mixer Grid Coil	0Ω		73874				Channel 6 - part of complete assembly
L21	Osc. Coil	0Ω		79068				Channel 13 - part of complete assembly
L22	Osc. Coils	0Ω		79068				Includes stator complete with rotor, coils (also L23), trimmer & C19 Includes 27ΩΩ resistor
L23	Conv. Plate	.2Ω	.1Ω	78399				
L24	47.25MC Trap	.1Ω		78204			6319 *	
L25	1st. Video IF	.2Ω	.3Ω	78363	17-4523	TV-130	6319	
L26	Fil. Choke	0Ω			19-1001		6604	1.3 Microhenries
L27	2nd. Video IF	.2Ω	.3Ω	76433	17-4522	TV-130	6319	
L28	Fil. Choke	0Ω			19-1001		6604	1.3 Microhenries
L29	3rd. Video IF	.2Ω	.2Ω	76433	17-4523	TV-130	6319	
L30	4th. Video IF	.2Ω	.3Ω	76433	17-4524	TV-130	6319	
L31	Series Peaking Coil	2.5Ω		76011	19-3035	TV-180	6176	56 Microhenries
L32	Shunt Peaking Coil	10.5Ω		71536	19-3350	TV-185	6181	250 Microhenries
L33	Series Peaking Coil	7.5Ω		77074	19-3360 ■	TV-185 ■	6181 ■	250 Microhenries wound on 82KΩ resistor
L34	Shunt Peaking Coil	7.5Ω		79821	19-3350 ▲	TV-185 ▲	6181 ▲	250 Microhenries wound on 39KΩ resistor
L35	4.5MC trap	8.3Ω		79197	17-3405 ◆		1470	
L36	Series Peaking Coil	5.8Ω		71538	19-4180	TV-183	6179	180 Microhenries wound on 39KΩ resistor

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L37	Shunt Peaking Coil	11Ω		75252	19-3500		6174	500 Microhenries
L38	Sound IF	2.3Ω		79140	16-3445 ▬	TV-113▬	6203 ▬	
L39	Ratio Det.	9Ω	.3ΩCT	79141	17-3497 †	TV-115 †	6205 †	Tertiary winding-.3Ω
L40	Horiz. Osc.	20Ω	55Ω	79534	20-1402 #	TV-162 #	6183 #	
L41	Horiz. Phase	46Ω		79161	20-1402 #	TV-162 #	6183 #	
L42	RF Choke	.72Ω		76640	19-1001		4604	1.5 Microhenries
L43	Ant. Coil	.4Ω		79528				
L44	Osc. Coil	.6Ω	5Ω	79057	14-1074 §	BC-381 ††	71-OSC	
L45	Input IF	14Ω	24Ω	75486	16-6758	BC-352	12-C1	
L46	Output IF	14Ω	14Ω	79527	16-6770	BC-355	12-C6	

§ Leads sufficient mounting support.
†† Drill mounting hole.
* Use one winding only.
■ Parallel with 27KΩ resistor.
▲ Parallel with 10KΩ resistor.
♦ Do not use tap winding.
▬ Terminals sufficient mounting support.
† Terminals sufficient mounting support.
# Replaces horizontal oscillator and horizontal phase coils. Cut out chassis hole and drill mounting holes.
Note 1. Complete antenna matching transformer part #78396, includes L1 thru L7 and C4 thru C7.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L47	.260A	38Ω	1.3 Hy.	77676	C5037 ①	C-2996 ①	C-2326 ①	26C44 ①	C-23X ①

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3/10A 250V	78214		312.300 (3AG 3/10A)	357001	AGC 3/10	4405

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA Victor PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2	77779			46	0-1 or S-1 & 0-3	

ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	RCA Victor PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M3	75497 (78RPM Needle) 77899 (33-45 Needle)	*M-75 or †M-74 or ♦M-74D & *M-75LP or †M-74LP or ♦M-74LPD	*C-436 or †C-401 or ♦C-401D & *A-437 or †A-435 or ♦A-435D	*W-44A or †W-44S or ♦W-44D & *W-44MGA or †W-44MGS or ♦W-44MGD	* Metal † Jewel ♦ Diamond

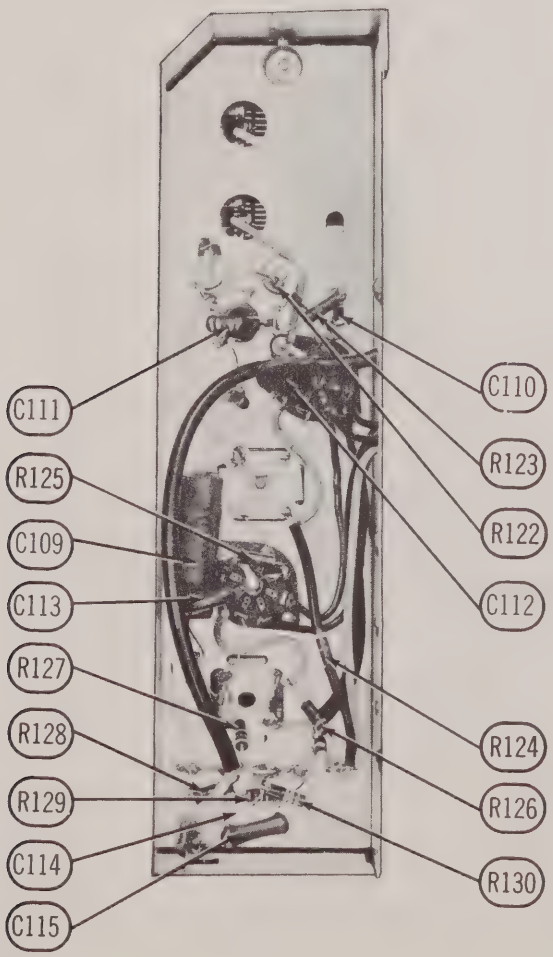
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		RCA Victor PART No.	SYLVANIA PART No.	
M4	1N60	76675	1N60 or 1N132	Video Detector

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M5	Dial Light	11891	TV, #44
M6	Dial Light	11891	Radio, #44
M7	Tuner	KRK-22D	VHF - Chassis KCS92J
M8	Tuner	KRK-30	VHF-UHF - Chassis KCS92K
M9	Tuning Cap.	79526	2 Gang (12-285MMF, 17-135MMF)
M10	Switch	79374	VHF-UHF - Chassis KCS92K
M11	Switch	79705	TV-Radio-Phono-Tone (Rotary-wafer type)
M12	Video IF Plate Assy.	79156	Used in chassis designations with letter "X" stamped after final letter.
M13	Printed Video IF Assy.	79479	Used in chassis designations without letter "X" stamped after final letter.
M14	Printed IF Sound Assy.	79142	
M15	Focus Magnet	77867	Includes centering device
M16	Ion Trap	76141	
A13	Trimmer Cap.	77616	RF Plate Trimmer (4-40MMF)
A5	Trimmer Cap.	78220	Video IF Input trimmer (5-70MMF)
B2	Trimmer Cap.	71807	Horiz. Drive (10-160MMF)
	Knob	79133	TV-Radio-Phono-Tone
	Knob	79445	On-off-volume - Blonde tropical hardwood intruments
	Knob	79471	On-off-volume - Mahogany instruments
	Knob	79444	Picture - Blonde tropical hardwood instruments
	Knob	79470	Picture - Mahogany instruments
	Knob	79686	Radio Station Selector - Blonde tropical hardwood instruments
	Knob	79685	Radio station Selector - Mahogany instruments
	Knob	79426	UHF channel Selector - Blonde tropical hardwood instruments Model 21S548NU
	Knob	79467	UHF channel Selector - Mahogany instruments - Model 21S548NU
	Knob	79465	UHF Fine tuning - Model 21S548NU
	Knob	79425	VHF channel selector - Blonde tropical hardwood instruments Model 21S548N
	Knob	79466	VHF channel Selector - Mahogany instruments - Model 21S548N
	Knob	79464	VHF Fine tuning - Models 21S548N
	Safety Glass	78815	
	Mask	79878	



RADIO CHASSIS BOTTOM VIEW

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SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

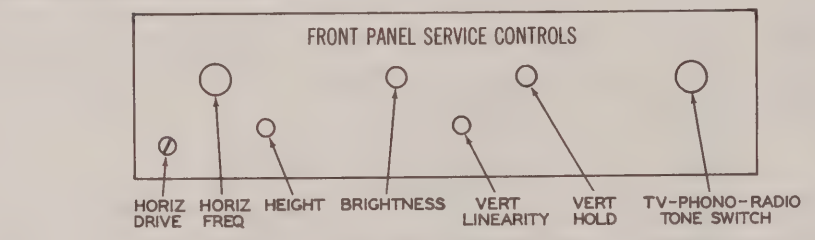
PICTURE TUBE SAFETY GLASS CLEANING

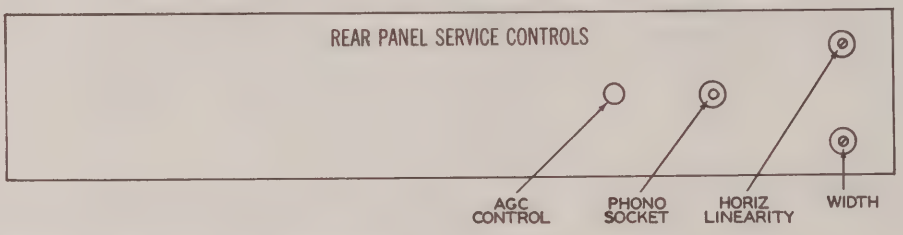
To clean safety glass, remove 9 metal spring clips holding the front metal trim in place. Hold metal trim in place when removing spring clips. Remove metal trim and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION





HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Adjustment of the horizontal oscillator circuit can be made from the front panel. Adjust the horizontal frequency control slug until picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the radio detector secondary (L39) located on bottom of chassis. (Hole is provided in bottom of cabinet for the adjustment.) (See tube placement chart).

FUSES

One fuse is used for horizontal sweep circuit protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

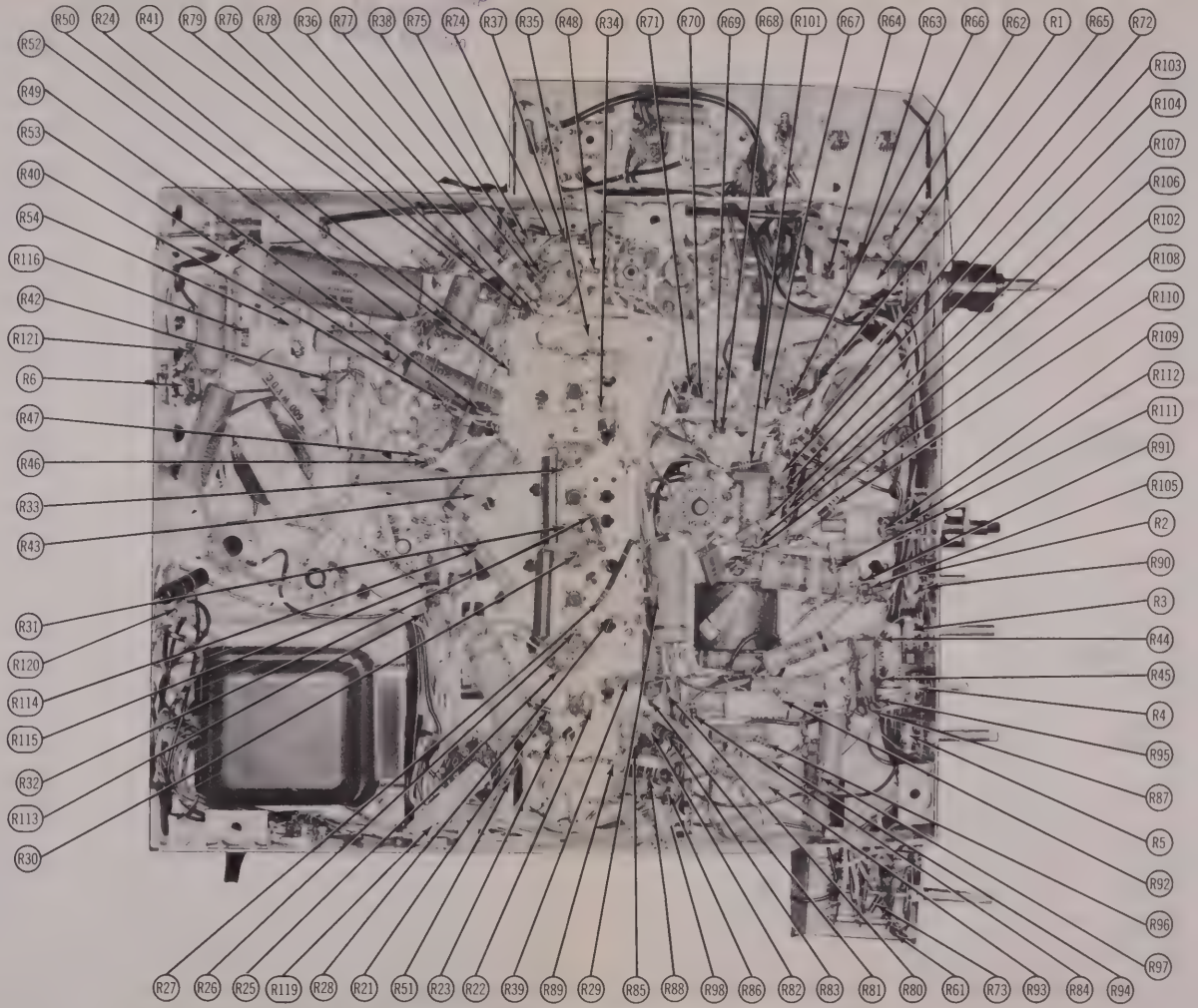
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type control knobs from front panel of cabinet.
2. Remove antenna leads.
3. Remove 2 wood screws and 2 metal spring clips. Remove rear cover.
4. Remove speaker leads, phono plug, phono motor plug, picture tube socket, yoke plug and HV lead.
5. Remove 5 chassis bolts. Remove chassis.
6. Removal of speaker may be made from phono drawer.
   a. Remove 7 wood screws. Remove speaker cover.
   b. Remove speaker leads.
   c. Remove 4 speaker nuts. Remove speaker.

PICTURE TUBE REMOVAL

1. Remove chassis and lay cabinet face down on a soft surface.
2. Remove 2 nuts holding focus magnet and deflection yoke.
3. Remove 2 yoke rod nuts. Remove 2 rods and yoke assembly.
4. Loosen 2 metal screws from picture tube mounting band.
5. Remove picture tube.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

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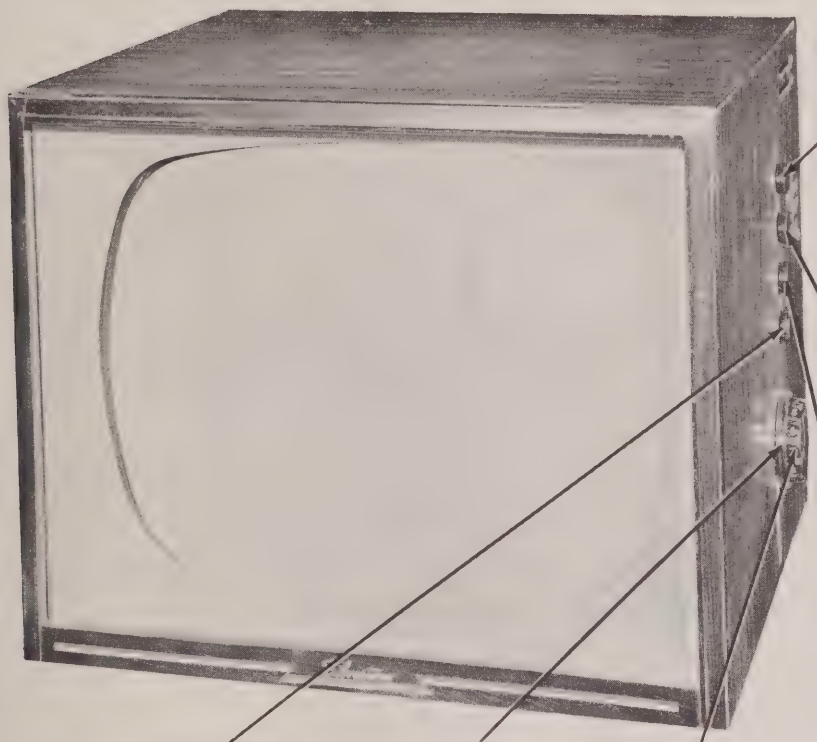

SILVERTONE MODEL 5114-2 (Ch. 549.16000)

TRADE NAME	Silvertone	MODELS	CHASSIS
		5114-2, 5116-2	549.16000
		5106-2	549.16001, 549.16004
		5114-2, 5114-2W, 5116-2	549.16002, 549.16003
SUPPLIER	Sears Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	Television Receiver		
TUBES	Fifteen		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING 1.16 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13, Video IF 26.4MC, Sound IF 21.9MC (Intercarrier)		

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SILVERTONE MODELS 5106-2, 5114-2, -2W, 5116-2 (Ch. 549.16000, 549.16001, 549.16002, 549.16003, 549.16004)

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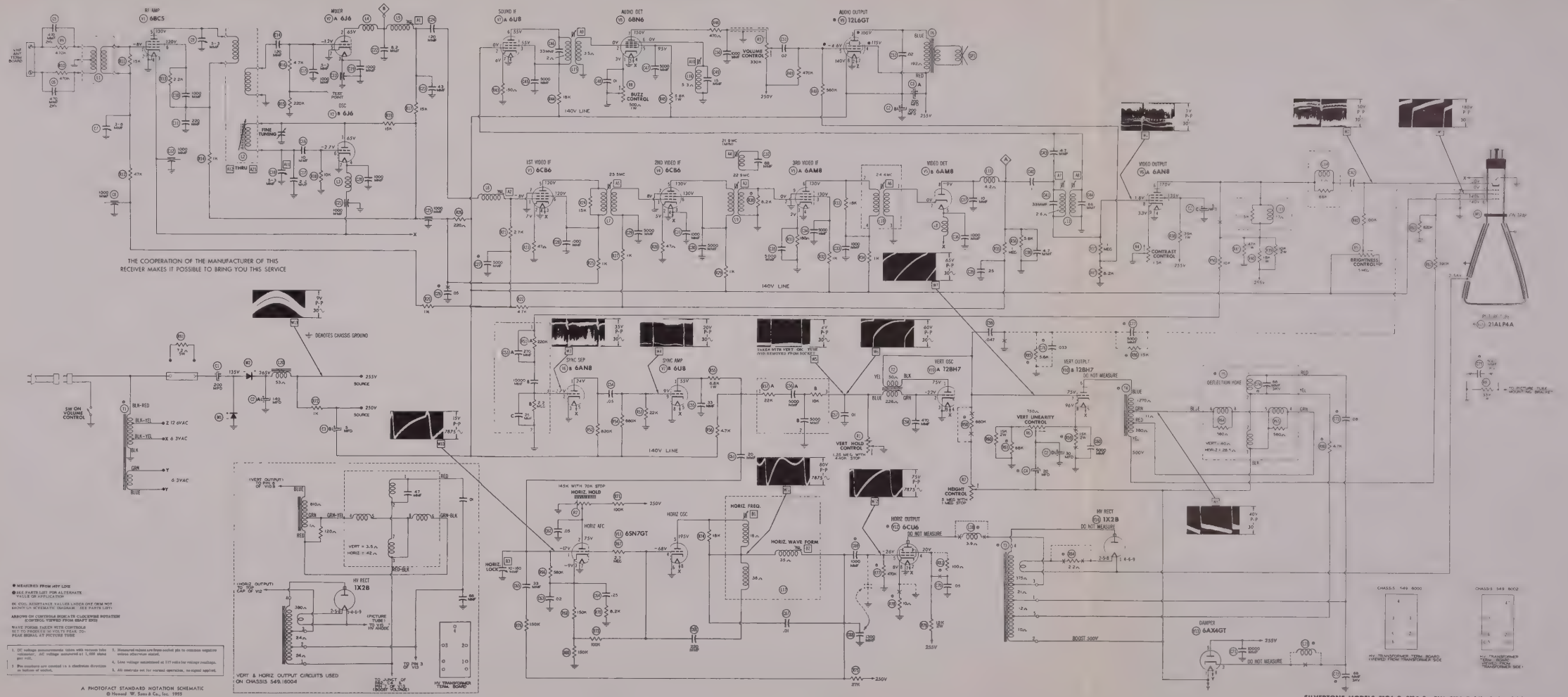
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RF AMP V1 6BC5
MIXER V2 A 6J6
OSC V3 B 6J6
SOUND IF V17 A 6U8
AUDIO DET V9 6BN6
AUDIO OUTPUT V8 12L6GT
1ST VIDEO IF V1 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 A 6AM8
VIDEO DET V7 B 6AM8
VIDEO OUTPUT V6 A 6AN8
SYNC SEP V16 B 6AN8
SYNC AMP V16 B 6U8
VERT OSC V13 A 12BH7
VERT OUTPUT V10 B 12BH7
HORIZ OUTPUT V12 6CU6
HORIZ OSC V11 6SN7GT
HV RECT V14 1X2B
DAMPER V15 6AX4GT
CRT V18 21ALP4A
SW ON VOLUME CONTROL
DENOTES CHASSIS GROUND
VERT & HORIZ OUTPUT CIRCUITS USED ON CHASSIS 549.16004
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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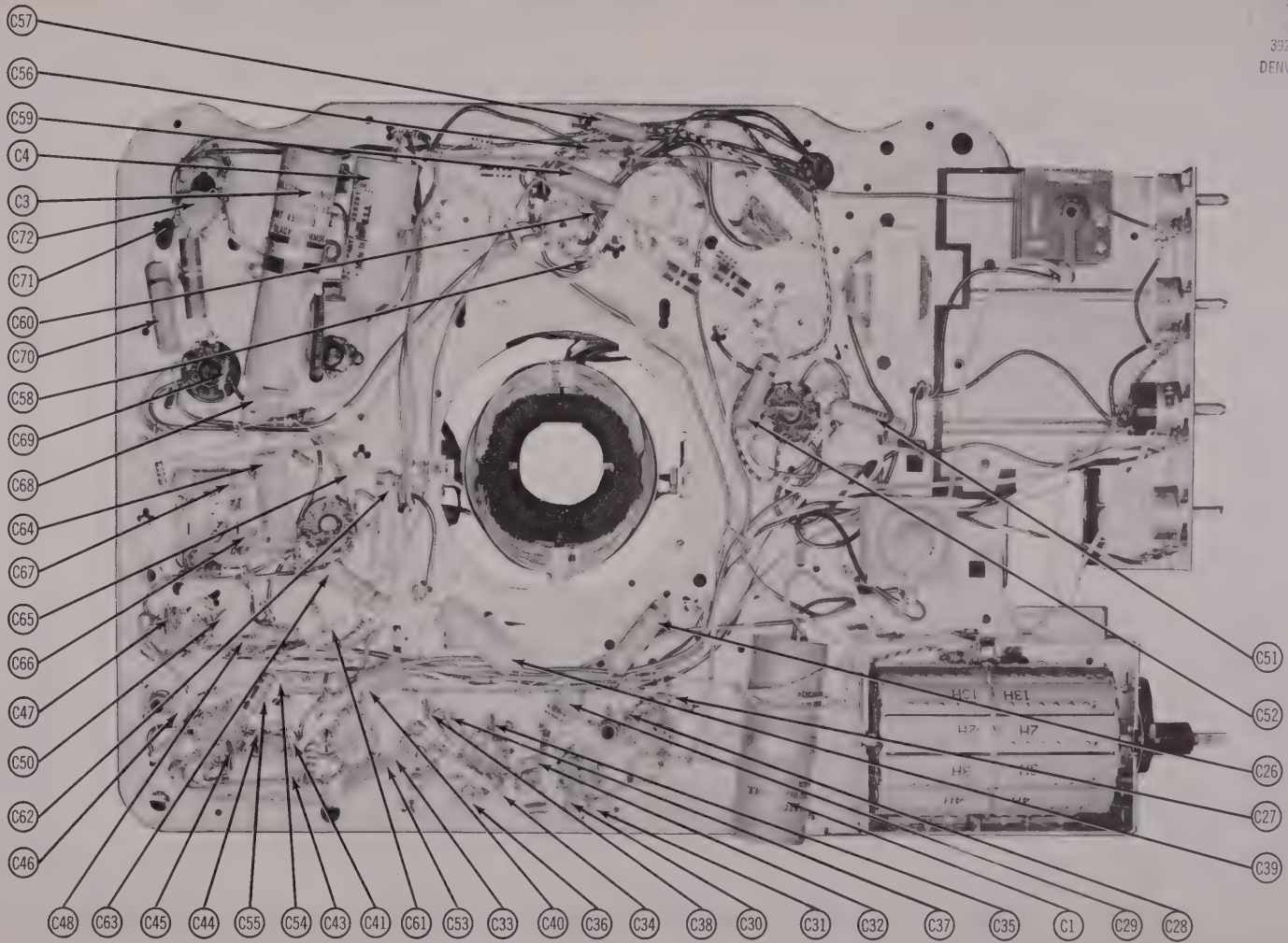
SILVERTONE MODELS 5106-2, 5114-2, -2W, 5116-2 (Ch. 549.16000, 549.16001, 549.16002, 549.16003, 549.16004)

CHASSIS TOP VIEW

SILVERTONE MODELS 5106-2, 5114-2, -2W, 5116-2 (Ch. 549.16000, 549.16001, 549.16002, 549.16003, 549.16004)

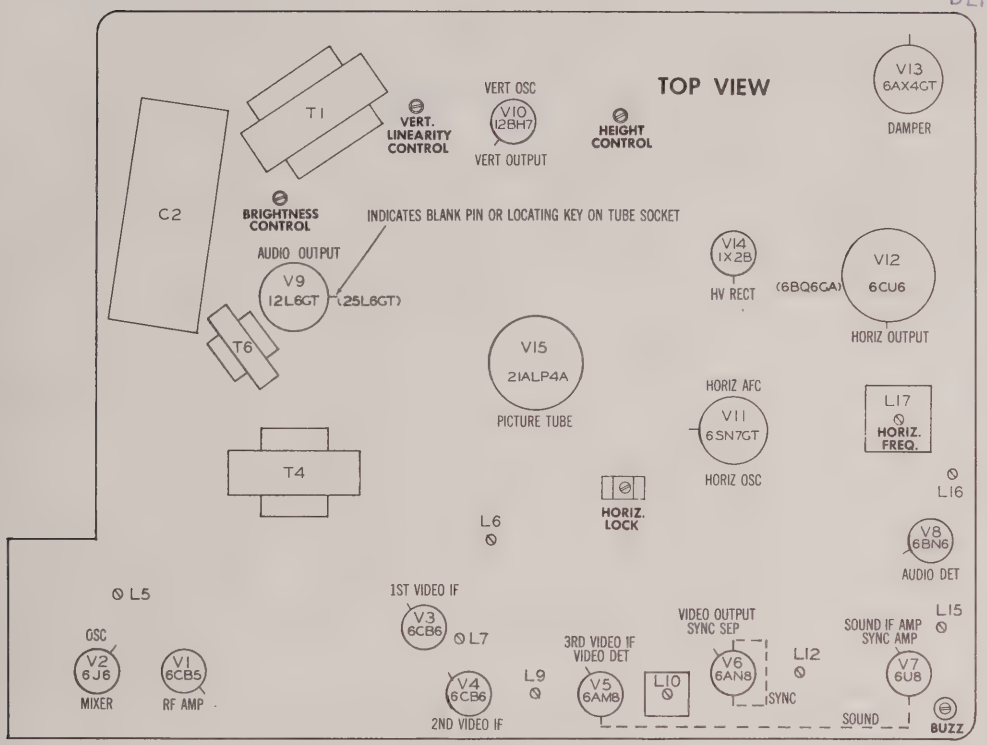
3924 MEADE ST.
DENVER, COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART

PROPERTY OF
L. F. MANNENSHIP
2080 MEADE ST.
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Selenium Rectifiers (M1 & M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V9**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V15**
Has pic, no sound - **V7, V8, V9**

SYNC FAILURE
No vert. sync - **V7, V10**
No horiz. sync - **V7, V11**
No vert. or horiz. sync - **V6, V7**

SWEEP FAILURE
No raster, has sound - **V11, V12, V13, V14, V15**
No vertical deflection - **V10**
Poor vert. linearity or foldover - **V10**
Poor horiz. linearity or foldover - **V11, V12, V13**
Narrow picture - **V11, V12, V13, V14, M1, M2**
Vert. off freq. - **V7, V10**
Horiz. off freq. - **V7, V11**

SILVERTONE MODELS 5106-2, 5114-2, -2W, 5116-2 (Ch. 549.16000, 549.16001, 549.16002, 549.16003, 549.16004)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
Remove the 6AX4 damper tube (V13) from its socket to disable the high voltage and connect a 2250Ω, 30 watt resistor from pin 5 of 6AX4 socket to chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to the ungrounded side of C39. Connect the positive lead to chassis.
Use only enough sweep generator output for usable indication on scope and VTVM.
Two peaks may occur during alignment of the video IF coils. Use the peak with the slug entering the coil from the end nearest the chassis.
The sound trap (A4) adjustment should be tuned with the slug entering away from the chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD Capacitor	High side to pin 5 (grid) of 6J6 (V2) (hole provided in side of tuner). Low side to chassis.	24MC (10MC Swp)	21.9MC 26.4MC	Any non-interfering channel	Vert. Amp. thru detector (Fig.1) to pin 5 (plate) of 6CB6 (V3). Low side to chassis.	A1, A2	Adjust for response curve similar to Fig. 2, with markers in proper position as shown in Fig. 2. Remove scope and detector from pin 5 of V3.
2.	"	High side to point (B). Low side to chassis.	Not used	22.9MC	"	Use VTVM. DC probe thru 3.3KΩ to point (A). Low side to chassis.	A3	Adjust for maximum deflection. If two peaks occurs, use peak nearest clip end of coil.
3.	"	"	"	21.9MC	"	"	A4	Adjust for MINIMUM deflection. Use enough generator output to produce 0.5 volts deflection at MINIMUM reading. The correct null should occur when core is nearest the end of coil. Repeat step 2.
4.	"	"	"	25.5MC	"	"	A5	Adjust for maximum deflection.
5.	"	"	"	24.4MC	"	"	A6	"
6.	Direct	High side to an ungrounded tube shield floating over converter tube. Low side to chassis.	24MC (10MC Swp)	21.9MC 23.15MC 26.4MC	"	Vert. Amp. thru 3.3KΩ to point (A). Low side to chassis.		Check for response curve similar to Fig.3. If necessary retouch A3 thru A6. Adjust A3 for position of 23.15MC marker. Adjust A5 to position 26.4MC marker. Adjust A4 to position 21.9MC trap marker. A1 and A2 should not require retouching. Retouch A6 to correct tilt. Remove test equipment. Replace V13 in its socket. Disconnect 2500Ω resistor from B+ side of C3A and chassis.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Set volume control for normal volume.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 8 (plate) of 6AM8 (V5B). Low side to chassis.	4.5MC (400∿Mod) (50KC Swp)	4.5MC	Any non-interfering channel	Across secondary of audio output transformer (T6).	A10	Set buzz control (R8) 90 degrees from maximum clockwise rotation. Adjust A10 for maximum 400∿ indication on scope.
8.	"	"	"	"	"	"	A7, A8, A9	Attenuate generator output so that signal level is below the limiting level of the 6BN6 as evidenced by background hiss and noise. Adjust A7, A8 and A9 for maximum response on scope.
9.	"	"	Not used	4.5MC (400∿Mod)	"	"	R8	Use high signal generator output and adjust R8 for MINIMUM 400∿ indication on scope.
10.	"	"	4.5MC (400∿Mod) (50KC Swp)	4.5MC	"	"	A10	With volume control at low level retouch A10 for maximum 400∿ indication on scope. Remove test equipment. Connect antenna and tune in weakest TV station in area and retouch R8 for MINIMUM buzz and hiss. Tune in strongest TV station in area and adjust A10 for clearest sound.

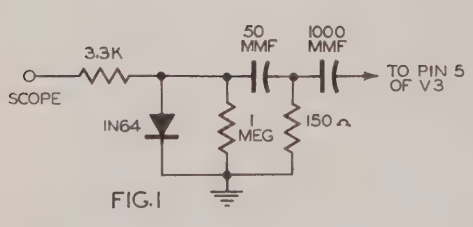


FIG.1

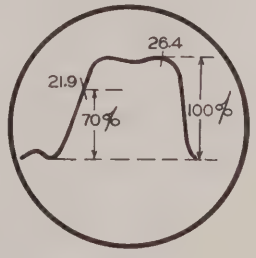


FIG. 2

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment". Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one adjustment using A-11. (This trimmer may not be used in all models).
It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A-11 will not bring all channels well within range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency.
The channel oscillator screws are reached thru a hole just to the right of the tuner shaft. The correct adjustment screw is accessible thru this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	57MC (10MC Swp)	55.25MC 59.75MC	2	Vert. Amp. thru 3.3KΩ to point (A). Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should fall at 50% on high frequency slope of response curve.
			63MC (10MC Swp)	61.25MC 65.75MC	3		A13	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A14	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A15	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A16	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A17	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A18	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A19	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A20	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A21	
			207MC (10MC Swp)	205.25MC 209.75MC	12		A22	
			213MC (10MC Swp)	211.25MC 215.75MC	13		A23	

RF AND MIXER ALIGNMENT

The RF and mixer portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion is not recommended in the field.

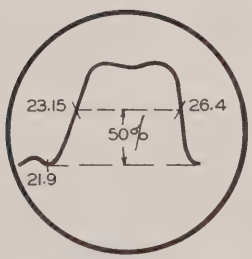


FIG. 3

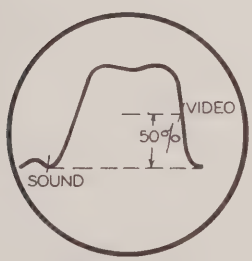


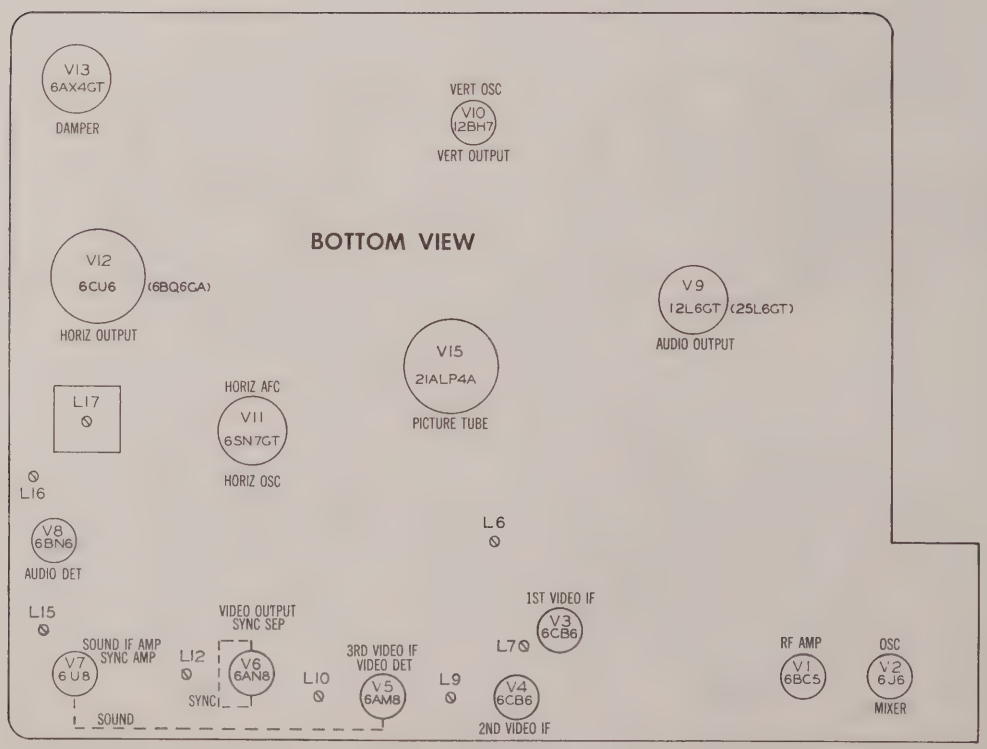
FIG. 4

SILVERTONE MODELS 5106-2, 5114-2, -2W, 5116-2 (Ch. 549.16000, 549.16001, 549.16002, 549.16003, 549.16004)

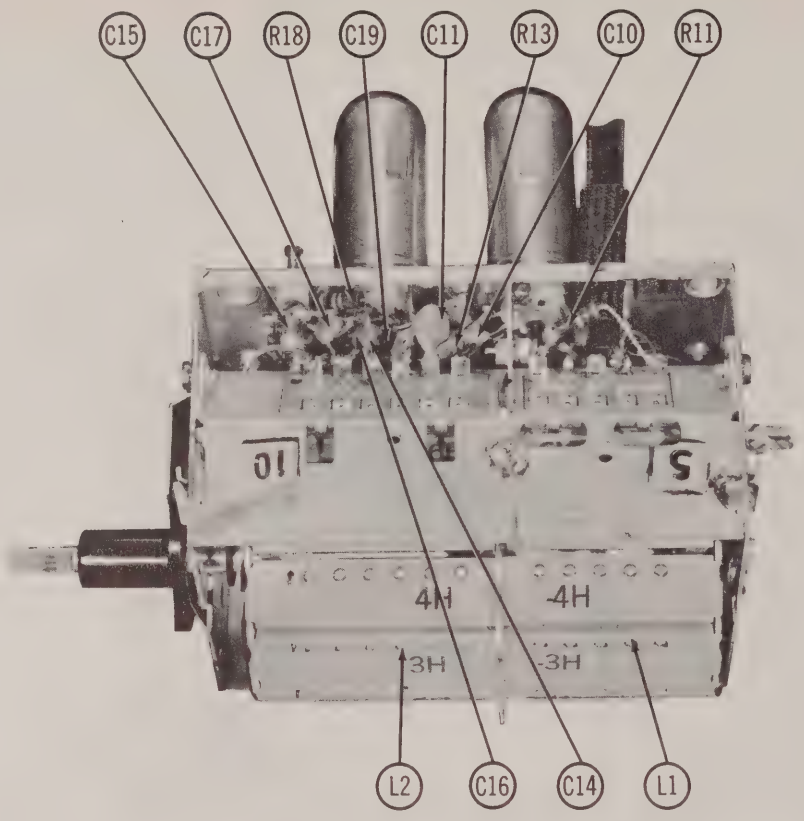
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1Meg	0Ω	.1Ω	0Ω	■1.2KΩ	■3.4KΩ	0Ω		
V 2	6J6	■15KΩ	■15KΩ	0Ω	.1Ω	225KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	47Ω	.1Ω	0Ω	■1.2KΩ	■1.2KΩ	0Ω		
V 4	6CB6	1Meg	47Ω	.1Ω	0Ω	■1KΩ	■1KΩ	0Ω		
V 5	6AM8	180Ω	.3Ω	■1KΩ	.1Ω	0Ω	■1KΩ	.3Ω	5.6KΩ	0Ω
V 6	6AN8	■820KΩ	2.2Meg	0Ω	0Ω	.1Ω	†6.5KΩ	†39KΩ	1Meg	250Ω
V 7	6U8	■11.5KΩ	.8Ω	■18KΩ	0Ω	.1Ω	■18KΩ	150Ω	0Ω	22KΩ
V 8	6BN6	300Ω	3.5Ω	0Ω	.1Ω	■5.6KΩ	5.3Ω	†330KΩ		
V 9	12L6GT	TP	0Ω	†250Ω	†55Ω	300KΩ	TP	.4Ω	50KΩ	
V 10	12BH7	▲2.5Meg	550KΩ	0Ω	.1Ω	.1Ω	▲1.4KΩ	▲2.5Meg	7.5KΩ	0Ω
V 11	6SN7GT	800KΩ	†80KΩ	300KΩ	250KΩ	†28KΩ	0Ω	0Ω	.1Ω	
V 12	6CU6	NC	.1Ω	TP	†12KΩ	470KΩ	NC	0Ω	10Ω	TOP CAP ▲21Ω
V 13	6AX4GT	NC	NC	500KΩ	NC	†55Ω	TP	500KΩ	500KΩ	
V 14	1X2B		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲400Ω
V 15	21ALP4A	0Ω	0Ω	PIN 6 50KΩ	PIN 10 ▲390KΩ	PIN 11 ■350KΩ	PIN 12 .1Ω			

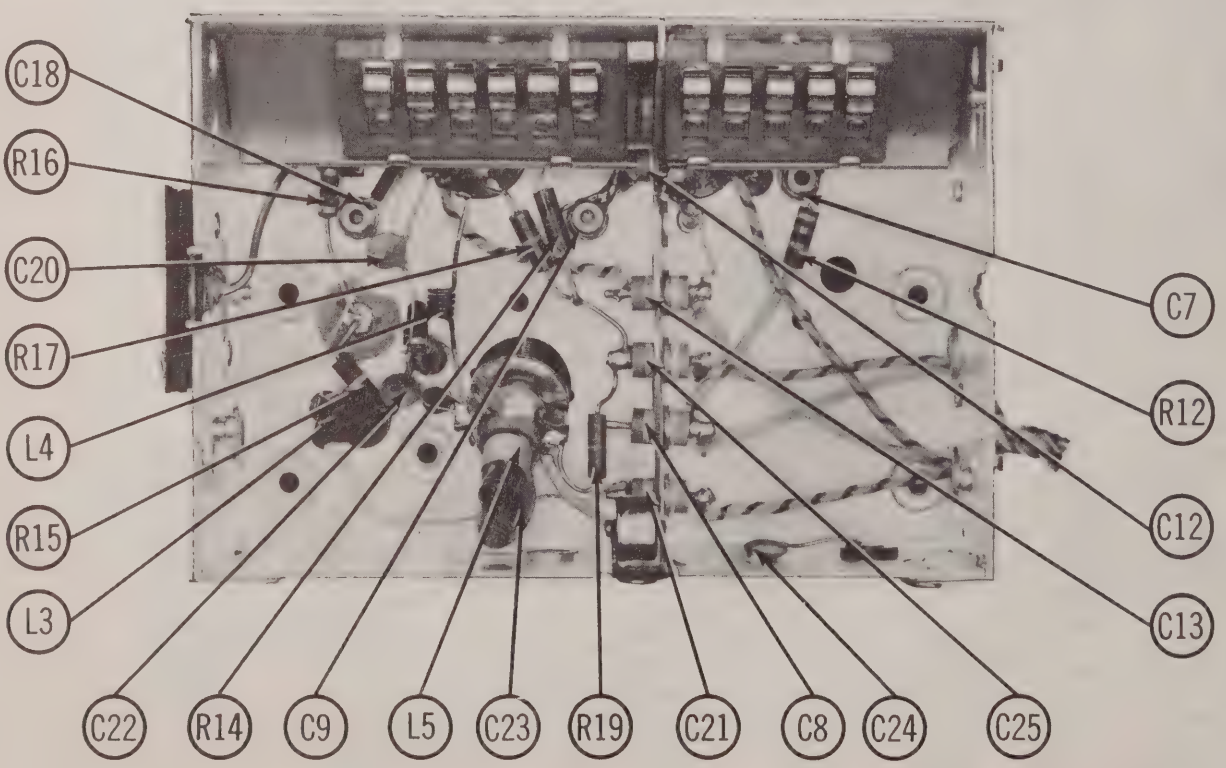
■ MEASURED FROM 140V LINE
† MEASURED FROM OUTPUT OF M2.
▲ MEASURED FROM PIN 3 OF V13
NC - NO CONNECTION
TP - TIE POINT



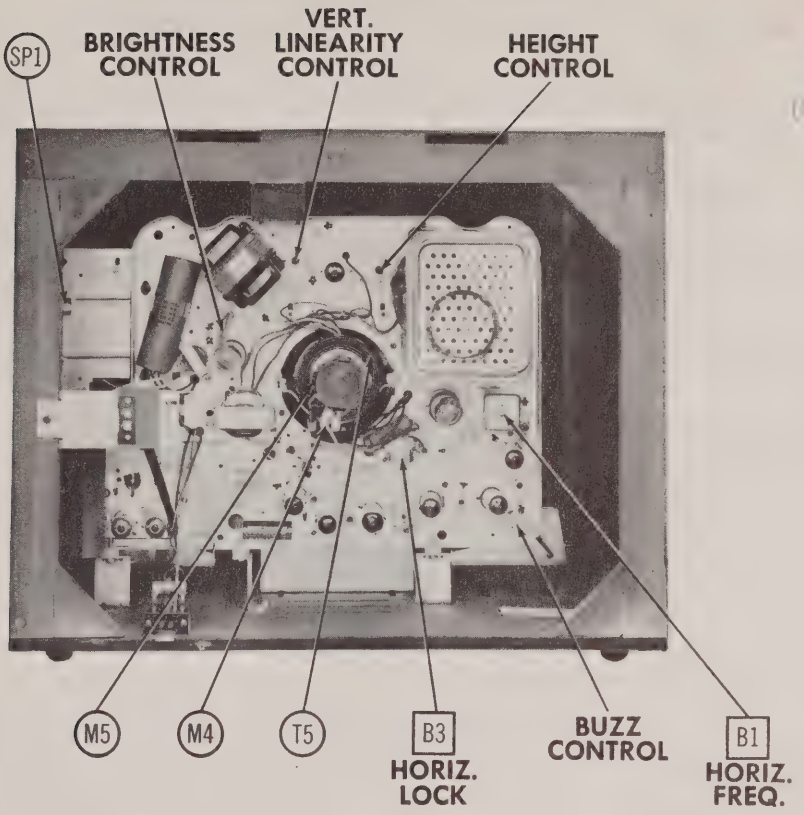
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn set on and tune in a TV station, preferably a test pattern .

1. Preset the horizontal lock trimmer (B3) one-half turn from maximum clockwise position.

2. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

3. Connect the vertical amplifier of the oscilloscope thru a 10MMF to lug "4" of L17. Low side to chassis. Adjust the horizontal waveform slug (B2) until waveform similar to Fig. 5 is obtained. While making this adjustment keep the picture in sync with the horizontal hold and if necessary, B1 and B3.

4. Remove scope connections from lug "4" of L17.

5. Turn the horizontal hold control fully counter clockwise. Turn B1 counter clockwise until the picture just loses sync, then turn B1 clockwise until picture is just ready to pull in sync.

6. Turn the horizontal hold control fully clockwise. Picture should remain in sync. Momentarily remove signal by switching off channel and back again. If more than 7 diagonal bars are present, adjust B3 slightly counter clockwise until 3 or 4 diagonal bars s appear when switching off channel and back again. If less than 3 bars are present when switching off channel and back again, adjust B3 slightly clockwise until 3 or 4 bars are present when switching off channel and back again. Repeat steps 5 and 6 until the effective pull in range of the horizontal hold control is from 60 to 120 degrees.

7. In weak signal areas adjust the horizontal hold control so that when switching off channel and back again the picture returns completely in sync.

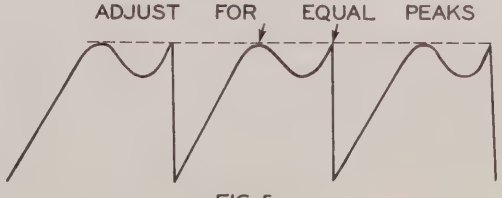


FIG. 5

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V11, V12 and V13. Check M1 and M2. Check R79, R81, C69, T3, T5A and other associated components.

DRIVE LINES

Check by substitution V12 and V13. Check M1 and M2. Check C68, C69, R78, R79, T3 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V12 and V13. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines."

PIE CRUST EFFECT

Check by substitution V11, V12 and V13. Check C63, C64, R70 for open. Check L17, R2, R71, C66 and other associated components.

XMAS TREE EFFECT

Check by substitution V11, V12 and V13. Check T3 and T5 for internal arcing. Check C65, C66, C67, C69, R75, R71 and other associated components.

VERTICAL

LOSS OF SWEEP

Substitute V10. Check waveform W7.

If Satisfactory	If Unsatisfactory
Check T4, T5B, C4, C2D, R59, R60, R61 and other associated components.	Check T2, C58, R58, R7 and other associated components.

INSUFFICIENT SWEEP

Substitute V10. Check height and vertical linearity controls for proper operation. Check R58, T4 and other associated components.

COMPRESSED AT BOTTOM

Substitute V10. Check R7, R58, T2, C58 and other associated components.

COMPRESSED AT TOP

Substitute V10. Check R59, R60, R61, R6, C2D and other associated components.

FOLDS

Substitute V10. Check C59, T2, T4, T5B, R58 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V6 and V7. Check C53, C54, R52, R55 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFAC TORY

Substitute V10. Check vertical integrator network. Check T2, C58, C57, R1 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Substitute V11. Check C61, C64, C63, R2, R71, R70 and other associated components.

HORIZONTAL BENDING

Check by substitution V6, V7 and V11. Check components associated with V11.

VIDEO

LOSS OF VIDEO

Substitute V6. Check C40, C42, C2C, R38, R39, R40 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A7. Check video IF Alignment.

POOR CONTRAST

Substitute V6. Check contrast control. Check C40, C42, L13, L14 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check picture tube. Check C40, C42, L13, L14 and other associated components.

SMEAR

Substitute V6. Check L11, L13, L14, C40, C42, R39, R40 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V7, V8 and V9. Check stage V9 using audio signal generator. Apply audio signal across R3.

If Satisfactory	If Unsatisfactory
Check audio detector and audio IFstaged for component failure or change of value.	Check C50, C51, C52, R46, R45, R48, R49, T6, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustments A10 and R8 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or no Sound."

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, check M1 and M2. Check R81 and C1. Check B+ filter and decoupling network.

SMALL AND/ON DIM PICTURE

Check M1, M2, C1 and R81. Check B+ filter and decoupling network.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

...RARY OF
...E CLASSIFICATION
3924 MEADE ST.
DENVER, COLORADO

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BC5	6BC5	7BD	
V2	Mixer-Osc.	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.-Video Det.	6AM8	6AM8	9CY	
V6	Video Output-Sync Separator	6AN8	6AN8	9DA	
V7	Sound IF Amp.-Sync Amplifier	6U8	6U8	9AE	
V8	Audio Det.	6BN6	6BN6	7DF	
V9	Audio Output	12L6GT	12L6GT	7S	25L6GT used in some versions
V10	Vert. Osc.-Vert. Output	12BH7	12BH7	9A	
V11	Horiz. AFC-Horiz. Osc.	6SN7GT	6SN7GT	8BD	
V12	Horiz. Output	6CU6	6CU6	6AM	6BQ6GA used in some versions
V13	Damper	6AX4GT	6AX4GT	4CG	
V14	HV Rectifier	1X2B	1X2B	9Y	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	SILVERTONE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V15	21ALP4A ①	21ALP4A ①	21ALP4A ①	21ALP4A/B ②	21ALP4A ①	12L	① Aluminized ② Silver screen
		21ALP4		21ALP4	21ALP4	12L	
	17HP4	17HP4/ 17RP4	17HP4/ 17HP4	17RP4 / 17HP4	17HP4 /17RP4	12L	
				17HP4B ②		12L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	SILVERTONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1	200	150	45B265			WC342	TD-200-200	S-110	
C2A	140	300	45B263			WQ505	CDB-1008	Q-162	
B	200	150							
C	5	300							
D	30	150							
C3A	200	150	45B260			WD345	TDL-205	D-088	
B	5	150							
C4	20	450	45B261			TC75	TD-20-450	FM-4520	Note 1
C5	470	2000	47A472	DD30-471	3KV-471	MCL347		K-2347	
C6	470	2000	47A472	DD30-471	3KV-471	MCL347		K-2347	
C7	3-8			829-10					
C8	1000								
C9	.5-3			829-3	3115-01-0R5	CT565A			
C10	1000			DD-102	801-001	DC-521			
C11	220			DD-221	811-221	UC-5322			
C12	1000								
C13	1000								
C14	120			DD-121	811-121	UC-5312			
C15	.5-3			829-3	3115-01-0R5	CT565A			
C16	10								
C17	2.2								
C18	.5-3			829-3	3115-01-0R5	CT565A			
C19	1000			DD-102	801-001	DC-521			
C20	1000			DD-102	801-001	DC-521			
C21	1000								
C22	8.2				NP0A-8R2				
C23	43			TCZ-43	NP0L-430				
C24	120			DD-121	811-121	UC-5312			
C25	1000								
C26	.05	200	46AU503J	DF-503		PT415	IMP2-S5	330215	Note 4
C27	5000		47A168	DD-502	811-005	DC-525		C-1250	Note 5
C28	1000		47A230	DD-102	801-001	DC-521		K-1210	
C29	5000		47A168	DD-502	811-005	DC-525		C-1250	
C30	5000		47A168	DD-502	811-005	DC-525		C-1250	
C31	1000		47A230	DD-102	801-001	DC-521		K-1210	
C32	68	500		D6-680	801-680			KR-1468	
C33	1000		47A230	DD-102	801-001	DC-521		K-1210	
C34	5000		47A168	DD-502	811-005	DC-525		C-1250	
C35	5000		47A168	DD-502	811-005	DC-525		C-1250	
C36	1000		47A230	DD-102	801-001	DC-521		K-1210	
C37	10		47CA20100F	D6-100	GP1K-100	UC-541		K-1410	
C38	4.7		47A160-6	TCZ-4R7	NP0A-4R7	ZT-555		KR-1550	
C39	.25	100	46A242			PT4025	IMP2-P25	3302025	
C40	.1	150	46A243	DF-104		PT401	IMP2-P1	330201	
C41	33		47A478						
C42	.1	400	46AV104J	DF-104		PT401	IMP4-P1	330401	
C43	4.7		47A160-6	TCZ-4R7	NP0A-4R7	ZT-555		KR-1550	
C44	68		47A479						
C45	5000		47A168	DD-502	811-005	DC-525		C-1250	
C46	33		47A478						
C47	5000		47A168	DD-502	811-005	DC-525		C-1250	
C48	.01	400	46AU103J	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C49	15		47A480						
C50	1000		47A230	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C51	.02	200	46AU203J	DF-203	817-02	PT412	IMP2-S2	330212	
C52	.02	600	46AZ203J	DF-203	817-02	PT612	IMP6-S2	330612	
C53A	270				GP2K-271	UC-5327		K-1327	
B	10000		†49A046	†PC-263	811-01	PT611		330611	
C	25				GP1K-250	UC-5425		K-1425	
C54	.05	200	46AU503J	DF-503		PT415	IMP2-S5	330215	
C55	33		47CA20A330M	D6-330	GP1K-330	UC-5433		K-1433	
C56A	5000		♦49A044	DD-502	811-005	DC-525	IMP6-D5	C-1250	
B	5000			DD-502	811-005	DC-525	IMP6-D5	C-1250	
C57	.01	400	46BR103E4	D6-103	GP2-333-103	PT411	IMP4-S1	330411	

SILVERTONE MODELS 5106-2, 5114-2, -2W, 5116-2 (Ch. 549.16000, 549.16001, 549.16002, 549.16003, 549.16004)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C58	470		47CA3047UK						
C59	.047	600	WSW7FW4						
C60	5000		47A168	DD-508	811-006	DC-585	IMP6-D5	C-1350	
C61	30		47CA2030SK	D6-300	GP1K-300	UC-543		K-1430	
C62	.05	400	46AW5037	DF-503		P7415	IMP4-S5	330415	
C63	.02	200	46AU2037	DF-203	417-02	P7413	IMP3-S3	330313	
C64	33		47A478						
C65	.25	100	46A242			P7H025	IMP3-P25	3302025	
C66	220	500	47CA220S1K	D6-221	811-231	MC2S40		KR-1373	
C67	.01	400	46C344	D6-103	GP3-103-X05	P7411	IMP4-S1	330411	
C68	1500	500	47CA152S1K					CR-1313	
C69	1000		47A332	DD-103	801-001	DC-531	IMP5-D1	K-1310	Note 2
C70	.05	400	46AW5037	DF-503		P7415	IMP4-S5	330415	
C71	10000		46SR103E4	DD-103	811-01	DC- 511			
C72	68	3000	47A473	D2M3-680	3EY-680	DC30468		K-6468	Note 3
C73	.08	200	46AU8037					330818	Note 6
C74	68	3000		DD30-680	3EY-680	DC30668			Note 7
C75	5000	1000	47A468	DD-502	SR6KV-472				Note 4
C76	033	400							Note 5
C77	5000								Note 8

† Items C53A, C53B, C53C, R51A, R51B are combined in one unit.
* Items C56A, C56B, R57A, R57B are combined in one unit.
Note 1. Some versions may use 10MFD in this application.
Note 2. Chassis 549.16002, and 549.16003 use a .03MFD (part #47A342). Chassis 549.16004 uses 560MMF (Part #47CA256SK) in this application.
Note 3. Chassis 549.16002 and 549.16003 use a 56MMF (part #45A555) in this application.
Note 4. Not used in chassis 549.16004.
Note 5. Chassis 549.16004 uses 1000MMF in this application (part #47A330).
Note 6. Chassis 549.16004 uses .01MFD in this application (part #46AU104J).
Note 7. Chassis 549.16004 uses 47MMF in this application.
Note 8. Used only in chassis 549.16004.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.25Meg with 440K stop	½	25B1097	QH-137 ①	A47-3Meg-B ①	B-69 ①	U-155 ①	Vert. Hold
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
R2A	165KΩ with 7kΩ stop	½	25B1099	QH-135 ②	A47-300K-B ②	B-55 ②	U-43 ②	Horiz. Hold
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	330KΩ	½	25B1101	QH-133	A47-500K-X	B-60-B	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
C	Switch		Not Req.	TS-1	SWK-12	Not Req.	US-26	Attach to R3A
R4A	1500Ω	½	25B1103	QT-109		AB-518	U-8	Contrast
B	Shaft		Not Req.	Not Req.		AK-3	Not Req.	Attach to R4A
R5A	5Meg	½	25B1098	QH-141				Brightness
B	Shaft		Not Req.	SQ				Attach to R5A
R6A	750Ω	½	25B1099	QH-135	A47-750-B	AB-56	U-4	Vert. Linearity
B	Shaft		Not Req.	SQ	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	5Meg with 1Meg stop	½	25B1098	QH-141 ③	A47-4Meg-B ③	AB-56 ①	SU-87 ①	Height
B	Shaft		Not Req.	SQ	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8	500Ω	1	25A1095		39-500			Buss wire-wound

Note 1. Connect a 470KΩ resistor in series with the left hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 2. Connect a 68KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 3. Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R9	470KΩ	½	23X20K474K	BTS-470K	
R10	470KΩ	½	23X20K474K	BTS-470K	
R11	15KΩ	½		BTS-15K	
R12	47KΩ	½		BTS-47K	
R13	3200Ω	½		BTS-3200	
R14	1000Ω	½		BTS-1000	
R15	220KΩ	½		BTS-220K	
R16	4700Ω	½		BTS-4700	
R17	15KΩ	½		BTS-15K	
R18	10KΩ	½		BTS-10K	
R19	15KΩ	½		BTS-15K	
R20	3000Ω	½	23X20K303K	BTS-3000	
R21	2700Ω	½	23X20K273K	BTS-2700	
R22	4700Ω	½	23X20K472K	BTS-4700	
R23	47Ω	½	23X20K470K	BTS-47	
R24	15KΩ	½	23X20K153K	BTS-15K	
R25	1000Ω	½	23X20K102K	BTS-1000	
R26	220Ω	½	23X20K221K	BTS-220	
R27	1000Ω	½	23X20K102K	BTS-1000	
R28	47Ω	½	23X20K470K	BTS-47	
R29	1000Ω	½	23X20K102K	BTS-1000	
R30	3300Ω	½		BTS-3300	Note 1
R31	180Ω	½	23X20K181K	BTS-180	
R33	1000Ω	½	23X20K102K	BTS-1000	
R33	18KΩ	½	23X20K183K	BTS-18K	
R34	1000Ω	½	K30K102K	BTS-1000	
R35	1Meg	½	23X20K105K	BTS-1Meg	
R36	5600Ω 5%	½	23X20K562K	BTS-5600 5%	
R37	1Meg	½	23X20K105K	BTS-1Meg	
R38	39KΩ	1	23X20K393K	BTS-39K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R39	10KΩ	2	23X40K103K	BTS-10K	
R40	18KΩ	1	23X30K183K	BTS-18K	
R41	47KΩ	1	23X30K473K	BTA-47K	
R42	100KΩ	1	23X20K104K	BTS-100K	
R43	150Ω	2	23X20K151K	BTS-150	
R44	18KΩ	2	23X30K183K	BTS-18K	
R45	5600Ω	1	23X30K562K	BTA-5600	
R46	470Ω	1	23X20K471K	BTS-470	
R47	8200Ω	2	23X20K822K	BTS-8200	
R48	560KΩ 5%	½	23X20K564J	BTS-560K 5%	
R49	470KΩ 5%	½	23X20K474J	BTS-470K 5%	
R50	100KΩ	1	23X30K103K	BTS-10K	
R51A	250Ω		T49A046		BTS-250K
B	2.5Meg				BTS-2.5Meg
R52	820KΩ	½	23X20K824K	BTS-820K	
R53	22KΩ	½	23X20K223K	BTS-22K	
R54	680KΩ	½	23X20K684K	BTS-680K	
R55	6800Ω	½	23X20K682K	BTA-6800	
R56	4700Ω	½	23X20K472K	BTS-4700	
R57A	25KΩ		‡49A044		BTS-25K
B	10KΩ				BTS-10K
R58	680KΩ	1	23X30K684K	BTA-680K	Note 5
R59	15KΩ	2	23X40K153K	BTS-15K	Note 5
R60	15KΩ	2	23X40K153K	BTS-15K	
R61	68KΩ	3	23X40K683K	BTS-68K	Note 4
R62	390KΩ	½	23X20K394K	BTS-390K	
R63	820KΩ	½	23X20K824K	BTS-820K	
R64	560Ω	½		BTS-560	
R65	560Ω	½		BTS-560	
R66	560Ω	½	23X20K564K	BTS-560K	

† Items R51A, R51B, C53A, C53B and C53C are combined in one unit.
* Items R57A, R57B, C56A and C56B are combined in one unit.
Note 1. Some versions use a 10KΩ resistor in this application.
Note 2. Chassis 549.16002, and 549.16003 use a 390KΩ resistor in this application.
Note 3. Used in chassis 549.16003 and 549.16003.
Note 4. Chassis 549.16003 uses a 68KΩ, ½ watt resistor in this application. Chassis 549.16004 uses an 18KΩ, 2 watt resistor in this application.
Note 5. Not used in chassis 549.16004.
Note 6. Used in chassis 549.16004 only.
Note 7. Not used in chassis 549.16002 and 549.16003.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R67	2.7Meg	½	23X20X275K	BTS-2.7Meg	
R68	150KΩ	½	23X20X154K	BTS-150K	
R69	150KΩ	½	23X20X154K	BTS-150K	
R70	8200Ω	½	23X20X822K	BTS-8200	
R71	100KΩ	½	23X20X104K	BTS-100K	
R72	1000Ω	½	23X20X102K	BTS-1000	
R73	100KΩ	½	23X20X104K	BTS-100K	
R74	18KΩ	½	23X20X183K	BTS-18K	
R75	27KΩ	½	23X20X273K	BTS-27K	
R76	150KΩ	½	23X20X154K	BTS-150K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R77	470KΩ	½	23X20X474K	BTS-470K	Note 2
R78	10Ω	½	23X20X100K	BTS-10	Note 7
R79	12KΩ	2		BTS-12K	
R80	4700Ω	1	23X20X472K	BTS-4700	Note 5
R81	7.5Ω	5	25B1101		
R82	33KΩ	1	23X30X333K	BTA-33K	
R83	100Ω	½	23X20X100K	BTS-100	Note 3
R84	2.2Ω	½		BTS-2.2	Note 3
R85	5600Ω	½	23X20X562K		Note 6
R86	15KΩ	½	RESISTANCE		Note 6

† Items R51A, R51B, C53A, C53B and C53C are combined in one unit.
* Items R57A, R57B, C56A and C56B are combined in one unit.
Note 1. Some versions use a 10KΩ resistor in this application.
Note 2. Chassis 549.16002, and 549.16003 use a 390KΩ resistor in this application.
Note 3. Used in chassis 549.16003 and 549.16003.
Note 4. Chassis 549.16003 uses a 68KΩ, ½ watt resistor in this application. Chassis 549.16004 uses an 18KΩ, 2 watt resistor in this application.
Note 5. Not used in chassis 549.16004.
Note 6. Used in chassis 549.16004 only.
Note 7. Not used in chassis 549.16002 and 549.16003.

TRANSFORMER (FILAMENT)

ITEM No	RATING PRI	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No	Merit PART No	RCA TYPE No	Stancor PART No	Thordarson PART No.	Triad PART No
T1	117VAC ⑨-⑦a tap ⑧ 12VAC ⑨-.62A tap ⑤ 6.3VAC ⑨-5A	6.3VAC @1.2A		52C341 53C333 ①						

① Used in chassis having 25L6 audio output tube.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordarson PART No.	Triad PART No
T2	Vert.Osc. Trans.	55B250		A-3000					
T3	Horiz.Output Trans.	55B255 ①	FB418 *	HVO-37 *		X133*	A-8283 *	FLY-25 *	D-48 *
		55B266 ②	FB418 *	HVO-37 *		X123 *	A-8283 *	FLY-25 *	D-48 *
		55B274 ③	FB418 *	HVO-37 *		X123 *	A-8283 *	FLY-25 *	D-48 *
		55B251 ④	FB417 *	HVO-37 *		X123 *	A-8241 *	FLY-25 *	D-48 *
T4	Vert.Output Trans.	55B280 ①-②		A-3524					
		55C249 ④	Z1805 ⑤ ⑦	A-3081⑤ ⑦		V305④⑤	A-8140④ ⑤	26S57 ⑤ ⑥	A-110X ⑤
T5A	Yoke(90°) Horiz. (30MH)	53D325④⑤ ⑦ ⑧	DF607 ⑩ ⑪ ⑫	MDF-92 ⑩ ⑪ ⑫			DY-15 A ⑩ ⑪ ⑫	Y-1410 ⑩ ⑪ ⑫	Y-41-1 ⑩ ⑪ ⑫
B	Vert.(40MH)								
T5A	Yoke(70°) Horiz. (32MH)	53D324 ④⑦	DF903 ⑩ ⑪ ⑫ ⑬	MDF-74 ⑩ ⑪ ⑫ ⑬	24D1 ⑩ ⑪ ⑫ ⑬	Y70F25/3 ⑩ ⑪ ⑫ ⑬	DY-10A ⑩ ⑪ ⑫ ⑬	Y-11 ⑩ ⑪ ⑫ ⑬	Y-201-1 ⑩ ⑪ ⑫ ⑬
B	Vert.(5.5MH)								

① Used in chassis 549.16000 (90 degree)
② Used in chassis 549.16002 (90 degree)
③ Used in chassis 549.16003 (90 degree)
④ Used in chassis 549.16004,549.16001 (70 degree)
⑤ Drill new mounting hole(s).
⑥ Connect as auto transformers.
⑦ Use 50 to 1 turns ratio.
⑧ Includes capacitor C74, resistors R64, R65
⑨ Includes capacitor C76.
⑩ Use original rear cover and centering device.
⑪ Use original horizontal yoke damping network.
⑫ Jumper terminals #3 and #5.
⑬ Connect horizontal yoke damping network across terminals #1 and #2. Use original network, if necessary.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	4 HV	4	7	4	7	7	4 HV	7
	3	4	3	6	3	6	3	6
	1	7	2	3	1	3	3	3
	5	2	NC	5	NC	5	NC	5
	2	6	1	2	2	2	2	2
Special Notes		⑭ ⑮ ⑯ ⑰				⑱ ⑲		

⑭ Connections for part #55B253 .
⑮ Connections for part #55B286, 55B274.
⑯ Connections for part #55B251.
⑰ FB418 connections.
⑱ FB417 connections.
⑲ A-8283 connections.
⑳ A-8241 connections.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI	IMPEDANCE SEC	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T6	2.2KΩ	3.5Ω	55B248	21005	A-2928	A-3876	24S50	S-1X	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V C IMP	REPLACEMENT DATA SILVERTONE PART No	QUAM PART No	NOTES
SP1	4"	PM	3.5Ω	85C175	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1A	Ant. Coil	0Ω CT	0Ω	131A340				Channel 1
B	Ant. Coil	0Ω CT	0Ω	131A341				Channel 2
C	Ant. Coil	0Ω CT	0Ω	131A342				Channel 4
D	Ant. Coil	0Ω CT	0Ω	131A343				Channel 5
E	Ant. Coil	0Ω CT	0Ω	131A344				Channel 6
F	Ant. Coil	0Ω CT	0Ω	131A345				Channel 7
G	Ant. Coil	0Ω CT	0Ω	131A346				Channel 8
H	Ant. Coil	0Ω CT	0Ω	131A347				Channel 9
I	Ant. Coil	0Ω CT	0Ω	131A348				Channel 10
J	Ant. Coil	0Ω CT	0Ω	131A349				Channel 11
K	Ant. Coil	0Ω CT	0Ω	131A350				Channel 12
L	Ant. Coil	0Ω CT	0Ω	131A351				Channel 13
L2A	RF, Mixer Grid & Osc. Coils	0Ω		131A352				Channel 2
B	RF, Mixer Grid & Osc. Coils	0Ω		131A353				Channel 3
C	RF, Mixer Grid & Osc. Coils	0Ω		131A354				Channel 4
D	RF, Mixer Grid & Osc. Coils	0Ω		131A355				Channel 5
E	RF, Mixer Grid & Osc. Coils	0Ω		131A356				Channel 6
F	RF, Mixer Grid & Osc. Coils	0Ω		131A357				Channel 7
G	RF, Mixer Grid & Osc. Coils	0Ω		131A358				Channel 8
H	RF, Mixer Grid & Osc. Coils	0Ω		131A359				Channel 9
I	RF, Mixer Grid & Osc. Coils	0Ω		131A360				Channel 10
J	RF, Mixer Grid & Osc. Coils	0Ω		131A361				Channel 11
K	RF, Mixer Grid & Osc. Coils	0Ω		131A362				Channel 12
L	RF, Mixer Grid & Osc. Coils	0Ω		131A363				Channel 13
L3	FIL. Choke	0Ω						
L4	RF Coil	0Ω						
L5	Conv. Plate	.7Ω						
L6	1st. Video IF	.6Ω		51A1861	17-1002 *	TV-102 *	6171A	
L7	2nd. Video IF	.3Ω	.2Ω	51A1854	17-1052		6350	
L8	Fil. Choke	0Ω		53A382	19-3001		6178	.4 Microhenry
L9	3rd. Video IF	.3Ω	.3Ω	51A1855			6193	Includes 21.9MC trap
L10	4th. Video IF	.3Ω	.3Ω	50A833	17-4521 *		6197 *	
L11	Series Peaking Coil	4.2Ω		53A307	19-1008		4634	16 Microhenries
L12A	4.5MC trap	2.6Ω		51A1858				
B	1st. Sound IF	.8Ω						
L13	Shunt Peaking Coil	17Ω		51C1875	19-4266 a		6653 a	975 Microhenries, wound on 152Ω resistor
L14	Series Peaking Coil	11Ω		51C1876	19-3500 a		6174 a	468 Microhenries, wound on 68Ω resistor
L15	Snd. Sound IF	2Ω	3.5Ω	51A1859				
L16	Quadrature Coil	5.3Ω		51A1897	20-1005	TV-151	1480	
L17	Horiz. Osc.	18Ω	36Ω	50D652	20-1651	TV-152	6182	Waveform winding-35Ω
L18	RF Choke	2.9Ω			19-1006		4634	15 Microhenries, not used in all versions
L19	RF Choke			53A307				Not used in all versions

* Detune trap.
a Parallel with 15KΩ resistor
a Parallel with 68KΩ resistor.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V C IMP	REPLACEMENT DATA SILVERTONE PART No	QUAM PART No	NOTES
SP1	4"	PM	3.5Ω	85C175	4A07	

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
L20	220ADC	53Ω	.88 HY	56B187	C5040	C-3994	C-3237	39C43	C-81X ①

① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	SILVERTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.200A	27A173	1028A	RS-250	6S250	6Q2	300	
M2	.200A	27A173	1028A	RS-250	6S250	6Q2	300	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Tuner	1D2017	VHF - Not used in all versions
	Tuner	1D2170	VHF - Used in some versions
M4	Centering Device		Part of yoke back cover (T5)
M5	Ion Trap	21B189	
B3	Trimmer Cap.	44A448	Horiz. Lock (10-160MMF)
	Cabinet	121-439	Model 5114-2
	Cabinet	121-440	Model 5116-2
	Cabinet	78A1196	Model 5114-2W
	Cabinet	78A1195	Model 5106-2
	Knob	15D762	Fine tuning
	Knob	15D786	Channel Selector - Model 5114-2 (Ch. 549.16000) and Model 5114-2W (Ch. 549.16002)
	Knob	15A797	Channel Selector - Model 5116-2 (Ch. 549.16000) 549.16003)
	Knob	15D761	Channel Selector - Model 5106-2
	Knob	15D769	Channel Selector - Models 5114-2, 5114-2W (Ch. 549.16003)
	Knob	15A798	On-off-volume, volume, contrast, vert. hold, horiz. hold - Model 5116-2 (Ch. 549.16000, 549.16003)
	Knob	15A787	On-off-volume, volume, contrast, vert. hold, horiz. hold - Model 5114-2 (Ch. 549.16000) and Model 5114-2W (Ch. 549.16002)
	Knob	15A775	On-off-volume, contrast, vert. hold, horiz. hold - Models 5114-2, 5114-2W (Ch. 549.16003) and model 5106-2
	Safety Glass	22C424	Models 5114-2, 5116-2, 5114-2W
	Safety Glass	22C423	Model 5106-2
	Mask	7C584	Gold - Models 5114-2, 5116-2
	Mask	7C575	Green - Model 5114-2W
	Mask	7C574	Model 5106-2

PROPERTY OF
L. F. ELECTRONICS
3524 MEADE ST.
DENVER, COLORADO

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V11, V12, V13 and V14. Check waveform W12.

If Satisfactory	If Unsatisfactory
Check T3, T5A, C70, C72, C71, R78, R79 and other associated components.	Check L17, C62, C66, C67, C68, C69, R71, R75, R74 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V12 and V13. Check M1 and M2. Check R81, R79, C69, T3, T5A and other associated components.

BLOOMING

Check by substitution V12 and V13. Check M1 and M2. Check C69, R79, R81 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video."

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or no Sound."

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V9. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set."

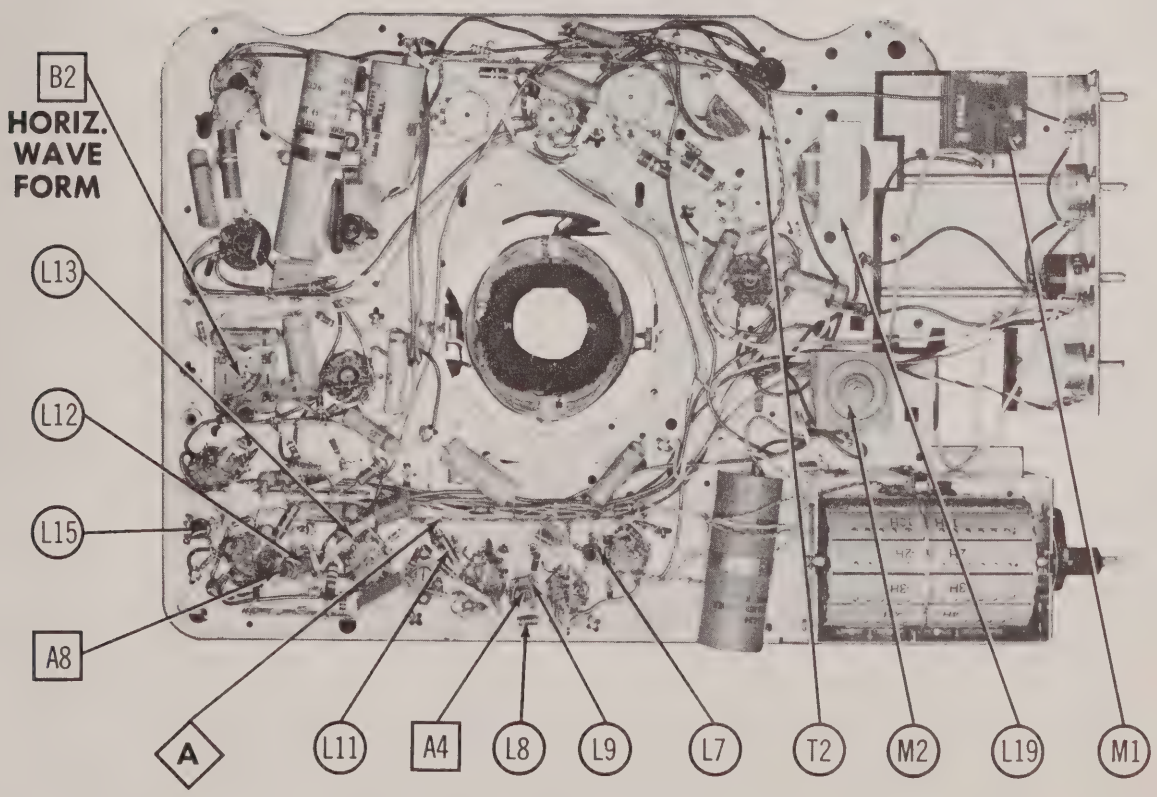
KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at time, thru the small hole in the cabinet below the channel selector shaft.

PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass, remove 5 wood screws holding plastic strip at the top of the safety glass. Remove plastic strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to the set. Adjustment is located on top of chassis.

Set horizontal hold control at the center of its range and adjust the horizontal frequency slug (L17) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

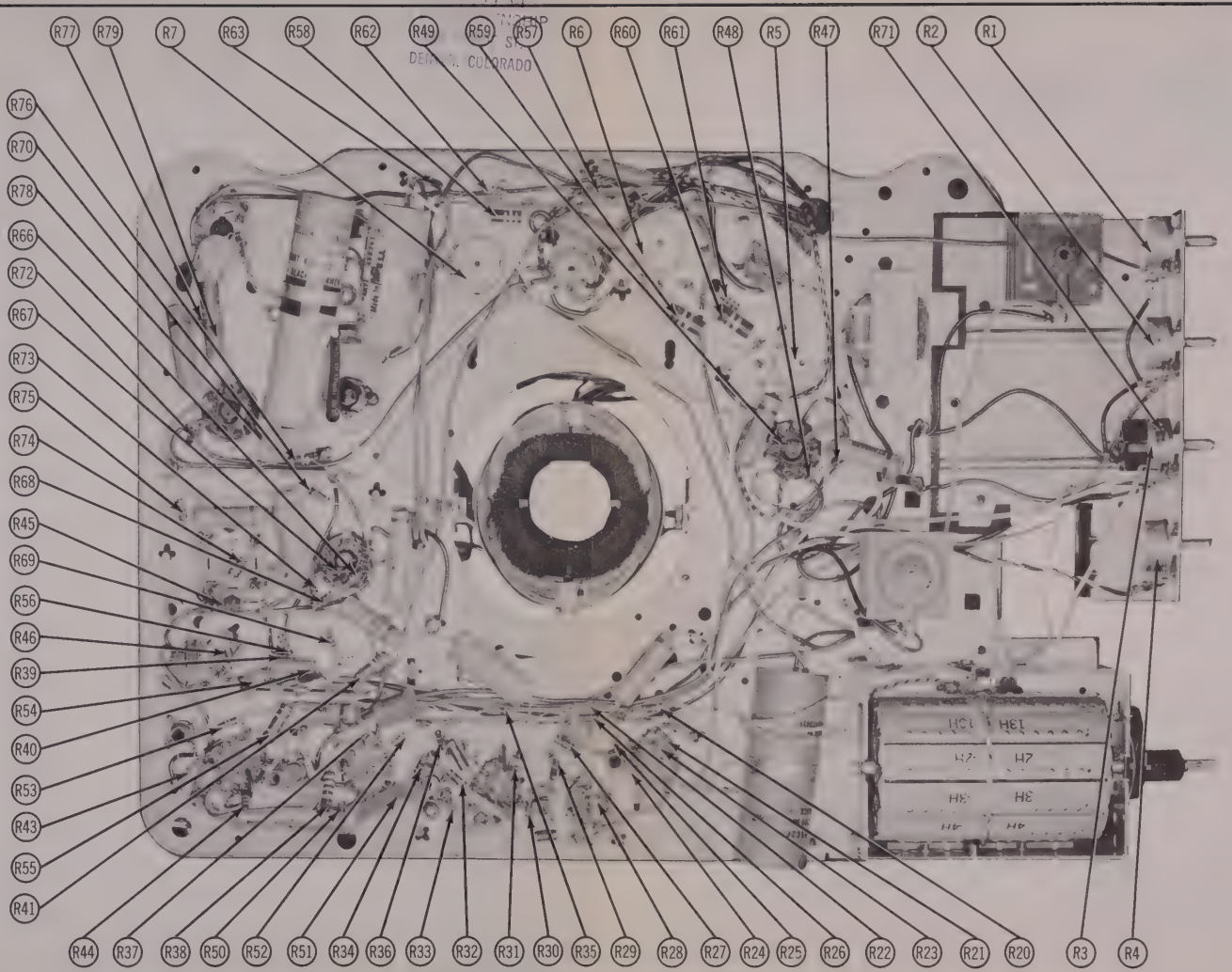
To eliminate sound IF detector buzz, it is necessary to remove the rear cover and supply power to the set. Adjust the buzz control (R8) for maximim volume and minimum buzz.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

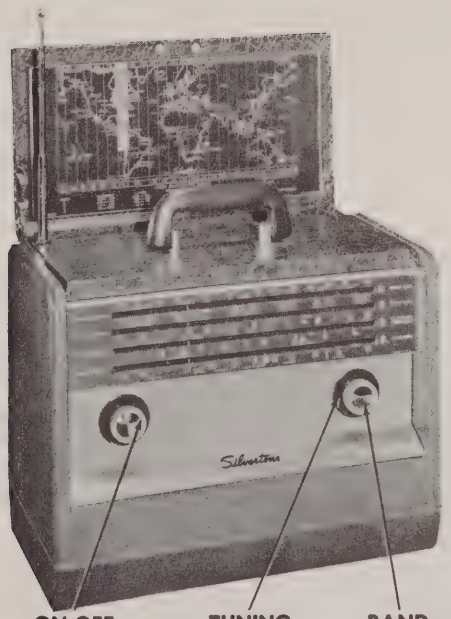
1. Remove 6 push-on type control knobs from side panel of cabinet.
2. Remove 6 wood screws. Remove rear cover.
3. Remove 1 wood screw. Remove antenna bracket.
4. Disconnect speaker leads.
5. Remove 6 metal bolts and 5 wood screws from under chassis mounting board.
6. Lift cabinet straight up and off of mounting board.
7. Remove 2 speaker nuts. Remove speaker.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

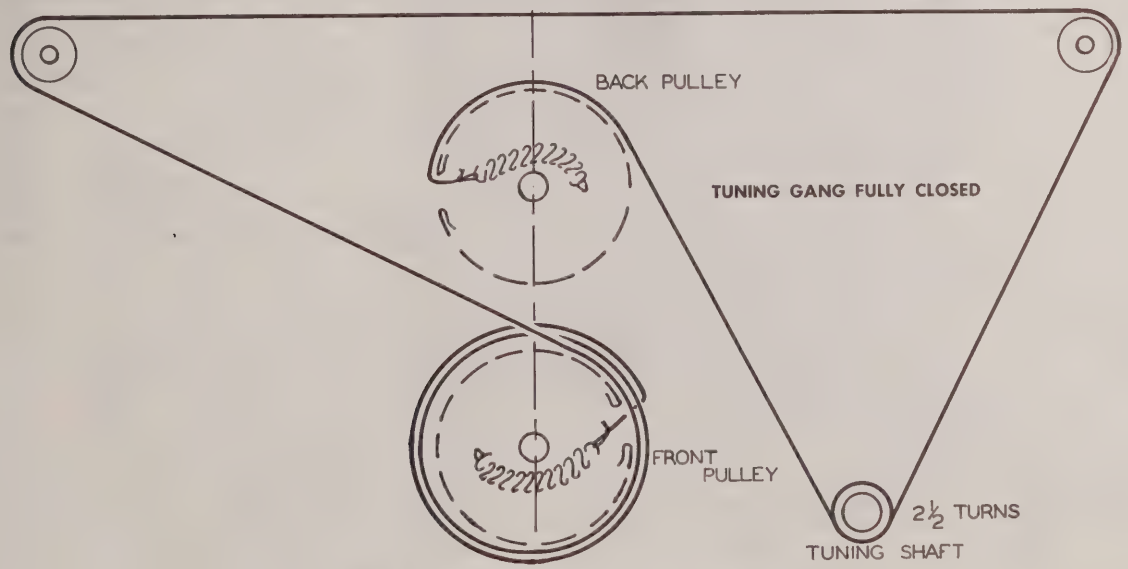
PROPERTY OF
L. F. SHIP

SILVERTONE
MODEL 5227 (Ch. 528.33200)



SILVERTONE
MODEL 5227 (Ch. 528.33200)

TRADE NAME	Silvertone Model 5227 (Ch. 528.33200)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	Three Power Portable Multi-Band AM Superheterodyne Receiver
TUBES (Five)	Types 1U4 RF Amp., 1L6 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Output
POWER SUPPLY	110-120 Volts AC-DC (or) 9 Volts "A" Supply & 90 Volts "B" Supply in Pack Form
RATINGS	.15 Amp. @ 117 Volts AC (or) 65MA @ 9 Volts DC & 13.5MA @ 90 Volts DC
LONG WAVE 190KC-410KC	TUNING RANGE-BROADCAST 535KC-1630KC SHORT WAVE 1.9MC-6.25MC, 5.8MC-18.25MC



DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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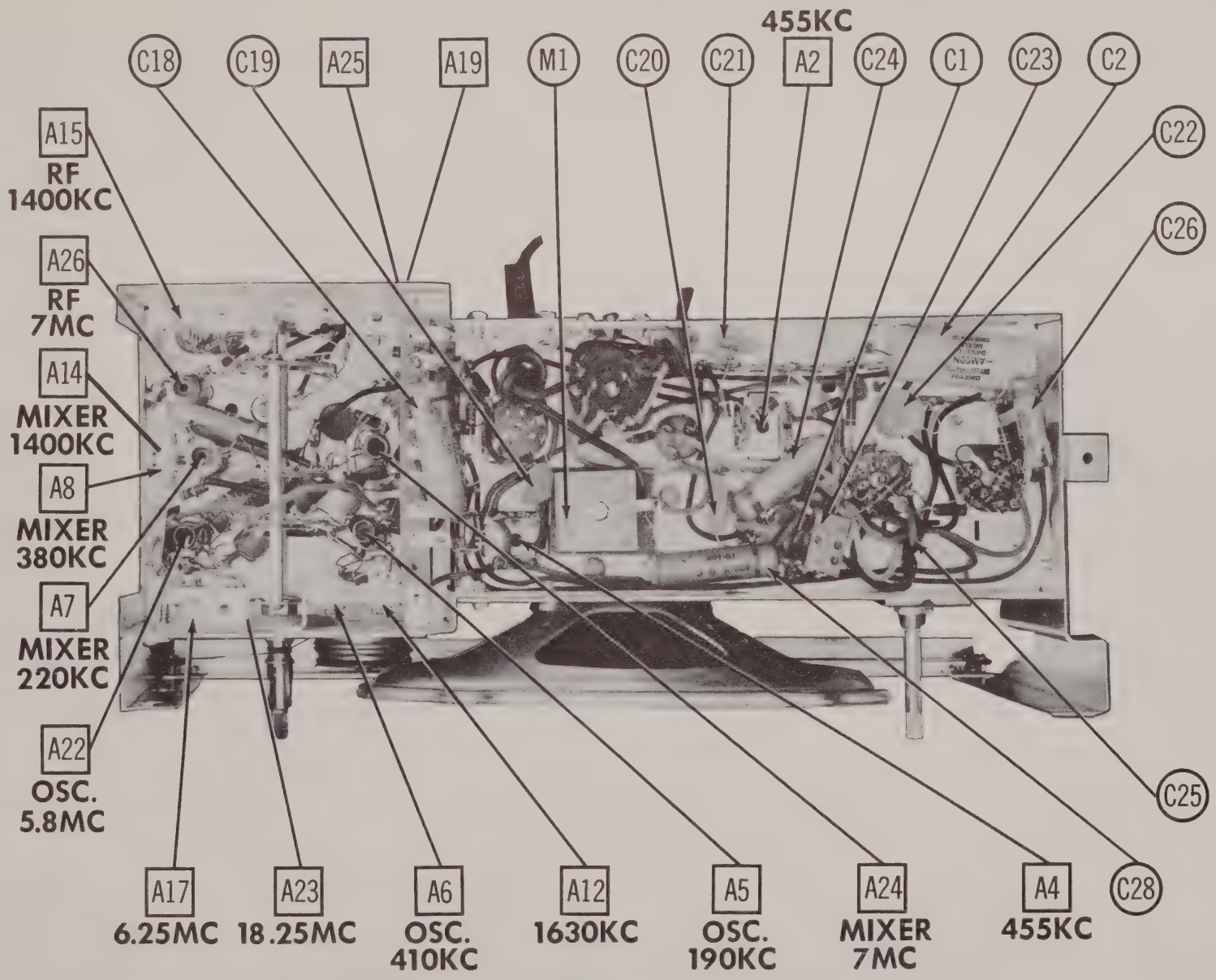
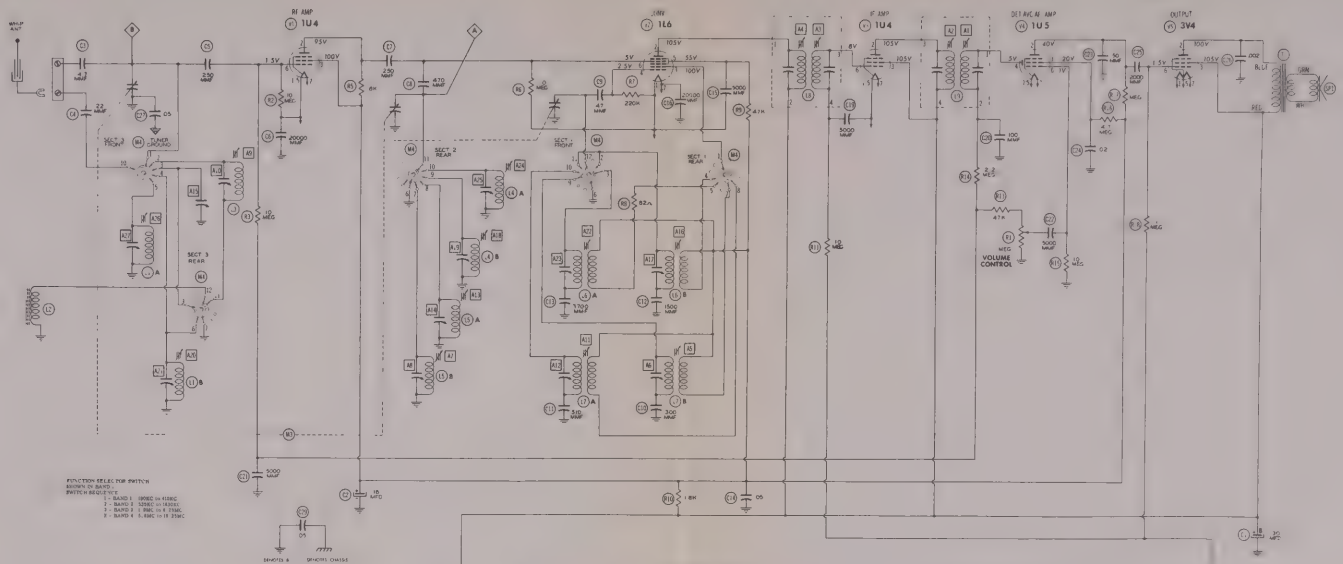


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	40Ω	20. 8KΩ	2. 8KΩ	TP	40Ω	6Meg	48Ω
V 2	1L6	20Ω	1KΩ	2. 8KΩ	220KΩ	49. 8KΩ	10Meg	27Ω
V 3	1U4	27Ω	1KΩ	1KΩ	NC	27Ω	10Meg	40Ω
V 4	1U5	0Ω	1Meg	4. 7Meg	1. 47Meg	0Ω	10Meg	20Ω
V 5	3V4	48Ω	1. 7KΩ	1KΩ	NC	59Ω	1Meg	70Ω

† MEASURED FROM OUTPUT OF MI.
TP TIE POINT.
NC-NO CONNECTION.
ALL MEASUREMENTS WITH SELECTOR SWITCH IN BAND 2 POSITION.

1. DC voltage measurements taken with receiver tuned to dead air (signal generator set at 1000 cycles per sec.
2. Resistance measurements are taken with set turned off.
3. Measurements are taken from chassis ground (⏚) unless otherwise indicated.
4. Line voltage is measured at 117 volts for voltage readings.
5. Resistance measurements are taken with a meter power for a deflection of 1000 ohms per volt on the 0-10 volt scale.
6. Voltage applied as maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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289-11

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to point Ⓐ. Low side to chassis	455KC (400∿ Mod.)	2	Tuning gang Fully open	Across Voice coil	A1, A2, A3, A4	Adjust for maximum output
				RF ALIGNMENT (BAND 1)				
*2.	.1MFD	High side to point Ⓐ. Low side to chassis	190KC	1	Tuning gang Fully closed	Across Voice coil	A5	Adjust for maximum output
*3.	"	"	410KC	"	Tuning gang Fully open	"	A6	" Repeat steps 2 & 3 until no further improvement is obtained
4.	"	High side to point Ⓑ. Low side to chassis	220KC	"	220KC	"	A7	Adjust for maximum output
5.	"	"	380KC	"	380KC	"	A8	"
6.		Loop	220KC	"	220KC	"	A9	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
7.		"	380KC	"	380KC	"	A10	Adjust for maximum output. Check for shift of mixer & RF alignment. If necessary, repeat steps 4 thru 7.
				RF ALIGNMENT (BAND2)				
*8.	.1MFD	High side to point Ⓐ. Low side to chassis	535KC	2	Tuning gang Fully closed	Across Voice coil	A11	Adjust for maximum output
*9.	"	"	1630KC	"	Tuning gang Fully open	"	A12	" Repeat steps 8 & 9 until no further improvement is obtained.
10.	"	High side to point Ⓑ. Low side to chassis	600KC	"	600KC	"	A13	Adjust for maximum output
11.	"	"	1400KC	"	1400KC	"	A14	"
12.		Loop	"	"	"	"	A15	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Check for shift of mixer & RF alignment. If necessary, repeat steps 10 thru 12.
				RF ALIGNMENT (BAND 3)				
*13.	.1MFD	High side to point Ⓐ. Low side to chassis	1.9MC	3	Tuning gang Fully closed	Across Voice coil	A16	Adjust for maximum output
*14.	"	"	6.25MC	"	Tuning gang Fully open	"	A17	" Repeat steps 13 & 14 until no further improvement is obtained
15.	"	High side to point Ⓑ. Low side to chassis	2.4MC	"	2.4MC	"	A18	Adjust for maximum output
16.	"	"	5.5MC	"	5.5MC	"	A19	"
17.	"	Thru dummy to external antenna position. Low side to chassis	2.4MC	"	2.4MC	"	A20	"
18.	"	"	5.5MC	"	5.5MC	"	A21	Adjust for maximum output Check for shift of mixer & RF alignment. If necessary, repeat steps 15 thru 18.
				RF ALIGNMENT (BAND 4)				
*19.	.1FMD	High side to point Ⓐ. Low side to chassis	5.8MC	4	Tuning gang Fully closed	Across Voice coil	A22	Adjust for maximum output
*20.	"	"	18.25MC	"	Tuning gang Fully open	"	A23	" Repeat steps 19 & 20 until no further improvement is obtained.
21.	"	High side to point Ⓑ. Low side to chassis	7MC	"	7MC	"	A24	Adjust for maximum output
22.	"	"	16MC	"	16MC	"	A25	"
23.	"	Thru dummy to external antenna position. Low side to chassis	7MC	"	7MC		A26	"
24.	"	"	16MC	"	16MC	"	A27	Adjust for maximum output Check for shift of mixer & RF alignment. If necessary, repeat steps 21 thru 24.

*These steps are critical (especially on long wave). Therefore they should be repeated until no further improvement is obtained.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amp.	1U4	1U4	6AR	
V2	Converter	1L6	1L6	7DC	
V3	IF Amp.	1U4	1U4	6AR	
V4	Det-AVC-AF Amp.	1U5	1U5	6BW	
V5	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: SILVERTONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲80	150	T18-305			FP302. 7	TM-3134	Q-005	
B	■30	150						MTH-2525	
C	▲300	25							
C2	16	150	T18-306			TC44	TD-16-150	MT-1516	
C3	4. 7		T15-257	TCZ-4R7	NPOA-4R7	NT-550			
C4	22		T15-325	TCZ-22	N750K-220				
C5	250		T15-313			MC240		K-1325	
C6	20000		T15-240	DD-203	817-02				
C7	250		T15-313			MC240		K-1325	
C8	470		T15-314	DD-471	811-471	UC-5347		K-1347	
C9	47		T15-265	TCN-47	N750K-470	NT-5447			
C10	300	500	T15-308	TCZ-300	NPO-335-301	MCE241		KR-1330	
C11	510	500	T15-309					KR-1351	
C12	1500	500	T15-310					CR-1215	
C13	3700	500	T15-311						
C14	. 05	200	T16-197	DF-503		PT415	IMP2-S5	330215	
C15	5000		T16-177	DD-502	811-005	DC525		C-1250	
C16	20000		T15-240	DD-203	817-02				
C17	. 1	200	T16-210	DF-104		PT401	IMP2-P1	330201	
C18	. 1	200	T16-210	DF-104		PT401	IMP2-P1	330201	
C19	5000		T16-177	DD-502	811-005	DC525		C-1250	
C20	100	500	T15-179	TCZ-100	NPO-337-101	MC235		K-1310	
C21	5000		T16-177	DD-502	811-005	DC525		C-1250	
C22	5000		T16-177	DD-502	811-005	DC525		C-1250	
C23	50	500	T15-175	TCZ-50	N750K-500	MC225		K-1450	
C24	. 02	400	T16-196	DF-203	817-02	PT412	IMP4-S2	330412	
C25	2000		T15-228	DD-202	801-002	UC-522		C-1220	
C26	. 002	600	T16-198	D6-202	GP2-333-202	PT622	IMP6-D2	330622	Note 1
C27	. 05	400	T16-189	DF-503		PT415	IMP4-S5	330415	
C28	. 05	400	T16-189	DF-503		PT415	IMP4-S5	330415	
C29	. 05	400	T16-189	DF-503		PT415	IMP4-S5	330415	

Note 1. Early chassis uses a 5000 MMF capacitor in this application.

CONTROLS

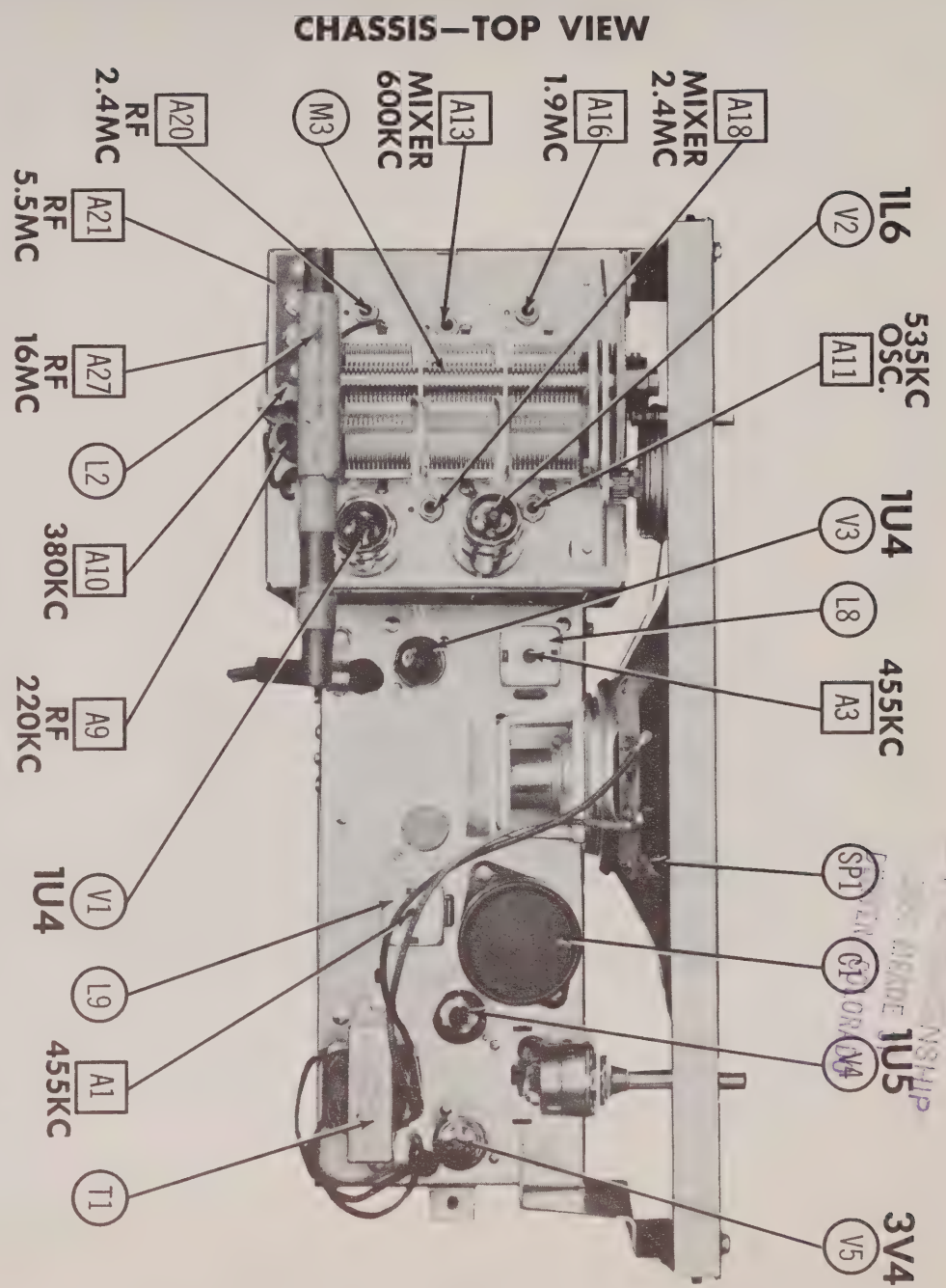
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	A24-223	Q13-137	A47-1Meg-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWE-20	Not Req.	US-27	Attach to R1A

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R2	10Meg	½	S601060M	BTS-10Meg	
R3	10Meg	½	S601060M	BTS-10Meg	
R4	1800Ω	½	S601820K	BTS-1800	
R5	18KΩ	½	S601830K	BTS-18K	
R6	10Meg	½	S601060M	BTS-10Meg	
R7	220KΩ	½	S602240K	BTS-220K	
R8	82Ω	½	S608200K	BTS-82	
R9	47KΩ	½	S604730M	BTS-47K	
R10	1800Ω	½	S601820K	BTS-1800	
R11	10Meg	½	S601060M	BTS-10Meg	
R12	1800Ω	½	S601820K	BTS-1800	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	NOTES
R13	47KΩ	½	S604730M	BTS-47K	
R14	2. 2Meg	½	S602250K	BTS-2. 2Meg	
R15	10Meg	½	S601060M	BTS-10Meg	
R16	4. 7Meg	½	S604750M	BTS-4. 7Meg	
R17	1Meg	½	S601050M	BTS-1Meg	
R18	1Meg	½	S601050M	BTS-1Meg	
R19	330Ω	½	S603310K	BTS-330	
R20	560Ω	½	S605610K	BTS-560	
R21	1000Ω	½	S601020K	BTS-1000	
R22A	80Ω	10	T61-8		
B	2000Ω	10			

CHASSIS—TOP VIEW



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PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	8.5KΩ	3.2Ω	T80-324	Z1116	A-2927①	A-3329①	24S49①	S-51X	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	5"x7"	PM	3.2Ω	T79-444	57A1	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1A	Antenna coil	.2Ω						Band 4 (5.8MC-18.25MC)
B	Antenna coil	.1Ω		T10-686				Band 3 (1.9MC-6.25MC)
L2	Antenna coil	.2Ω		T82-93				Band 1 and 2
L3	Antenna coil	15Ω		T10-683				Band 1 (190KC-410KC)
L4A	RF coil	.2Ω						Band 4 (5.8MC-18.25MC)
B	RF coil	.6Ω		T10-687				Band 3 (1.9MC-6.25MC)
L5A	RF coil	8.5Ω						Band 2 (535KC-1630KC)
B	RF coil	15Ω		T10-684				Band 1 (190KC-410KC)
L6A	Osc. coil	.6Ω	.1Ω					Band 4 (5.8MC-18.25MC)
B	Osc. coil	.8Ω	.5Ω	T10-688				Band 3 (1.9MC-6.25MC)
L7A	Osc. coil	.1Ω	3.3Ω					Band 2 (535KC-1630KC)
B	Osc. coil	1.1Ω	4.4Ω	T10-685				Band 1 (190KC-410KC)
L8	Input IF	20Ω	20Ω	T10-508	16-6758	BC-352	12-C1	
L9	Output IF	19Ω	19Ω	T10-508	16-6758	BC-353	12-C2	

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA: SILVERTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.065A	T83-568	1003A	RS-75	6S75	5M4	75	

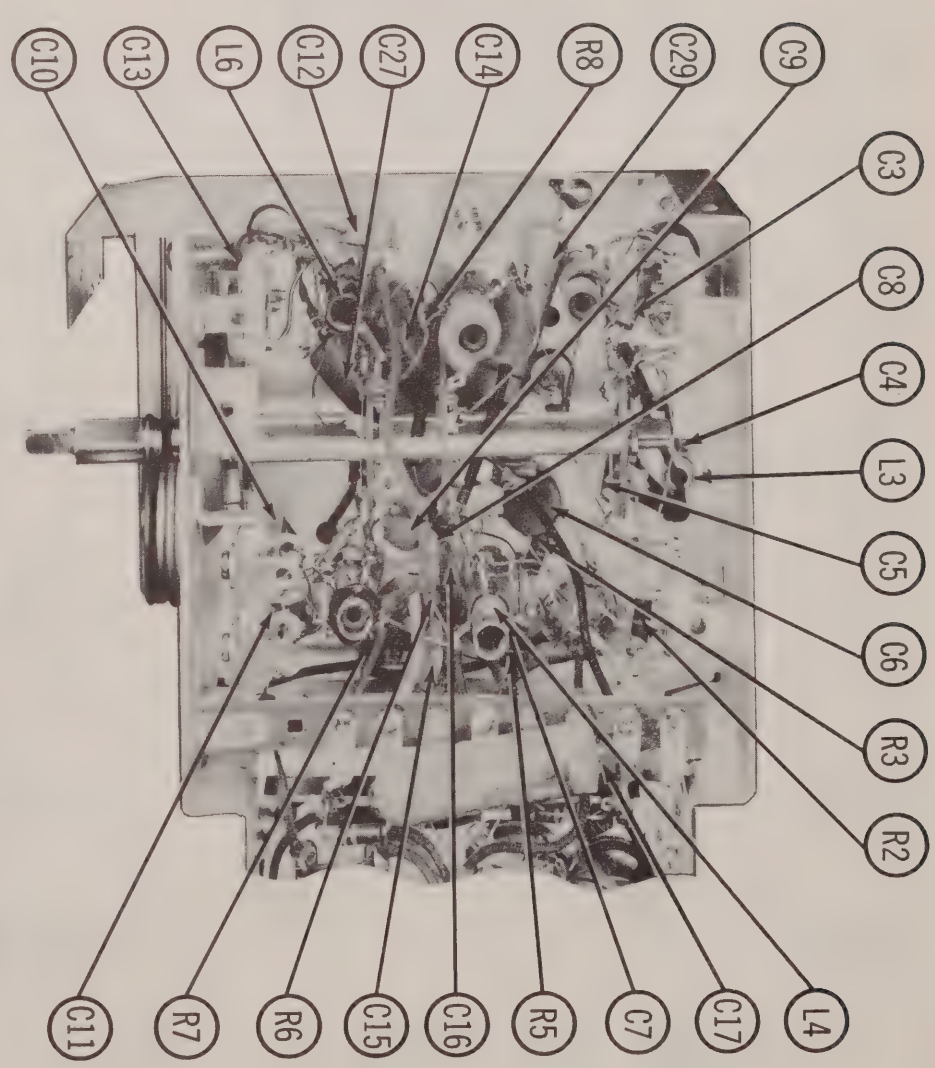
BATTERIES

ITEM No.	VOLTAGE	PART No. SILVERTONE	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M2	9V "A" 90V "B"	6407			753			F6A60	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Tuning Cap.	T19-243	3 Gang (12-460 MMF, 12-460 MMF, 12-460 MMF)
M4	Switch	T69-201	Band Selector (Rotary-Wafer Type)
M5	Switch	T69-186	Power Change Over (3 Pole-2 Position)
A6, A12	Trimmer Cap. Assembly	T20-156	Osc. Trimmers, Bands 1&2 (2 Sections)
A17, A23	Trimmer Cap. Assembly	T20-157	Osc. Trimmers, Bands 3 & 4 (2 Sections)
A8, A14	Trimmer Cap. Assembly	T20-159	RF Trimmers, Bands 1 & 2 (2 Sections)
A19, A25	Trimmer Cap. Assembly	T20-158	RF Trimmers, Bands 3 &4 (2 Sections)
A10	Trimmer Cap.	T20-154	Antenna Trimmer, Band 1
A15, A21, A27	Trimmer Cap. Assembly	T20-155	Antenna Trimmers, Bands 2, 3, & 4 (3 Sections)
	Cabinet	T42-722	
	Knob	T52-541	Bandswitch
	Knob	T52-542	Tuning
	Knob	T52-543	On-Off-Volume
	Dial Pointer	T58-109	

RF SUB-CHASSIS-BOTTOM VIEW



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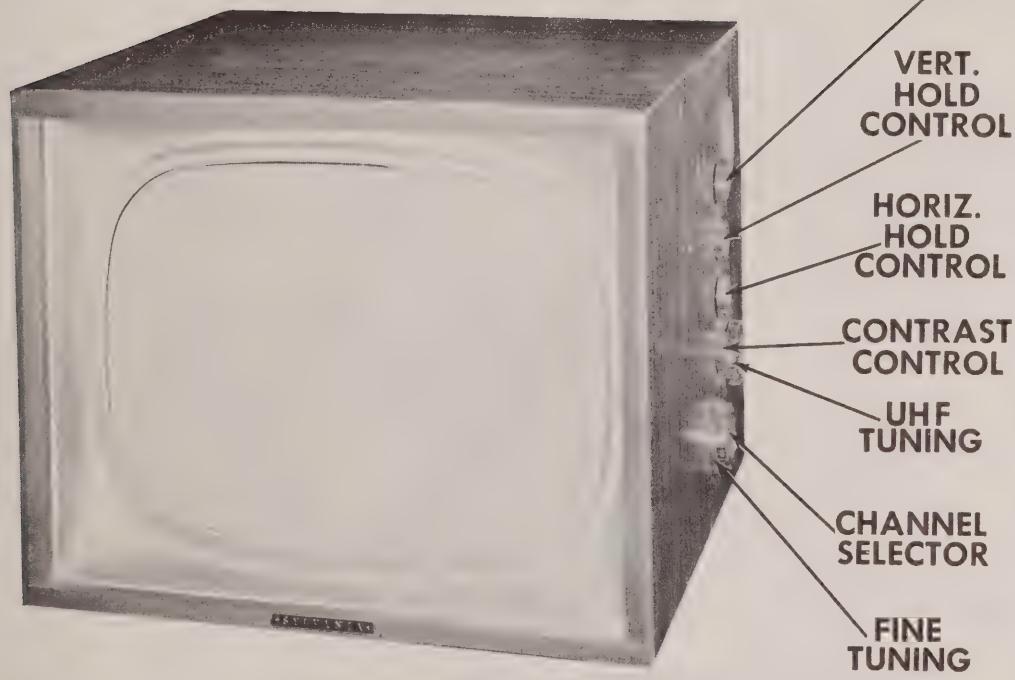

SYLVANIA MODEL
511 Series (Ch. 1-527-1, -2)

TRADE NAME	Sylvania Model 511 Series (Ch. 1-527-1, 1-527-2)
MANUFACTURER	Sylvania Electric Products, Inc., Radio & Television Div., 254 Rano St., Buffalo 7, N.Y.
TYPE SET	Television Receiver
TUBES	Sixteen
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.34 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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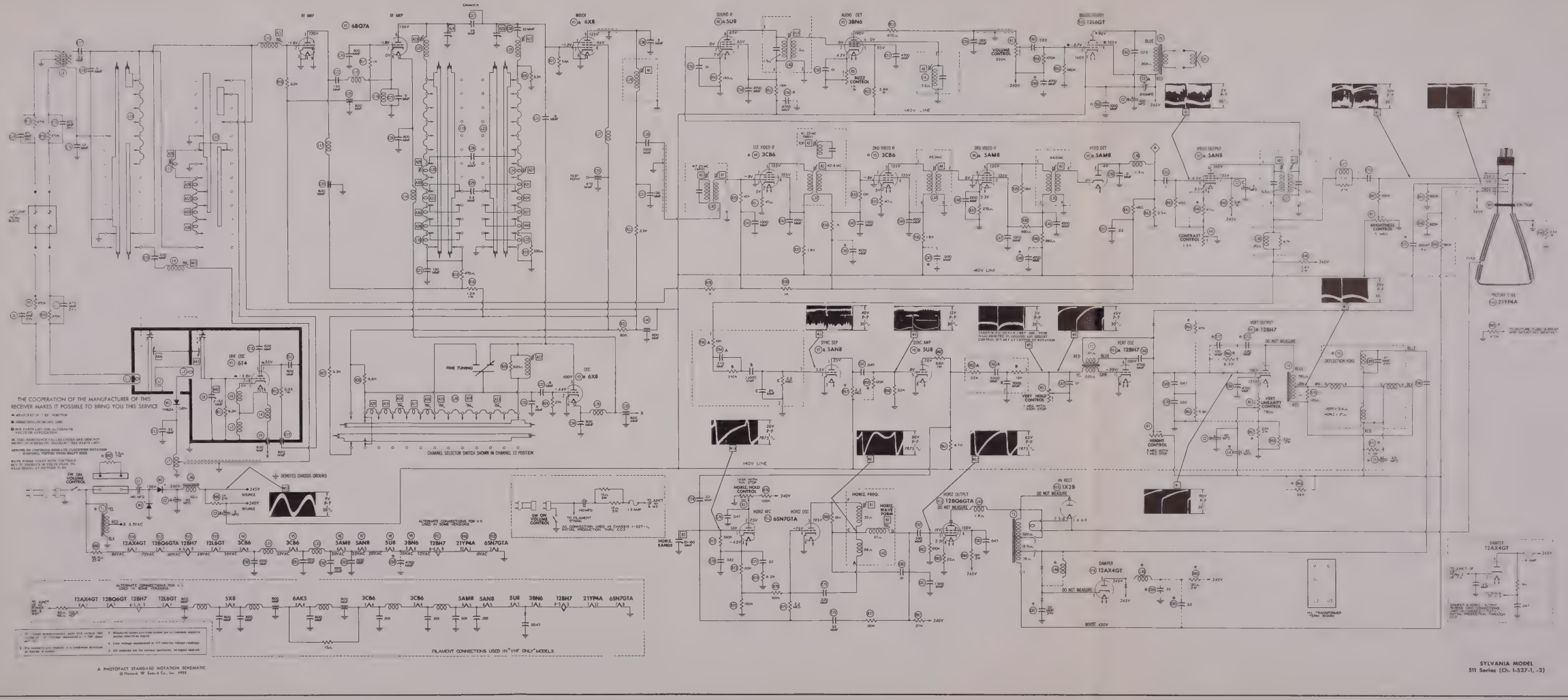
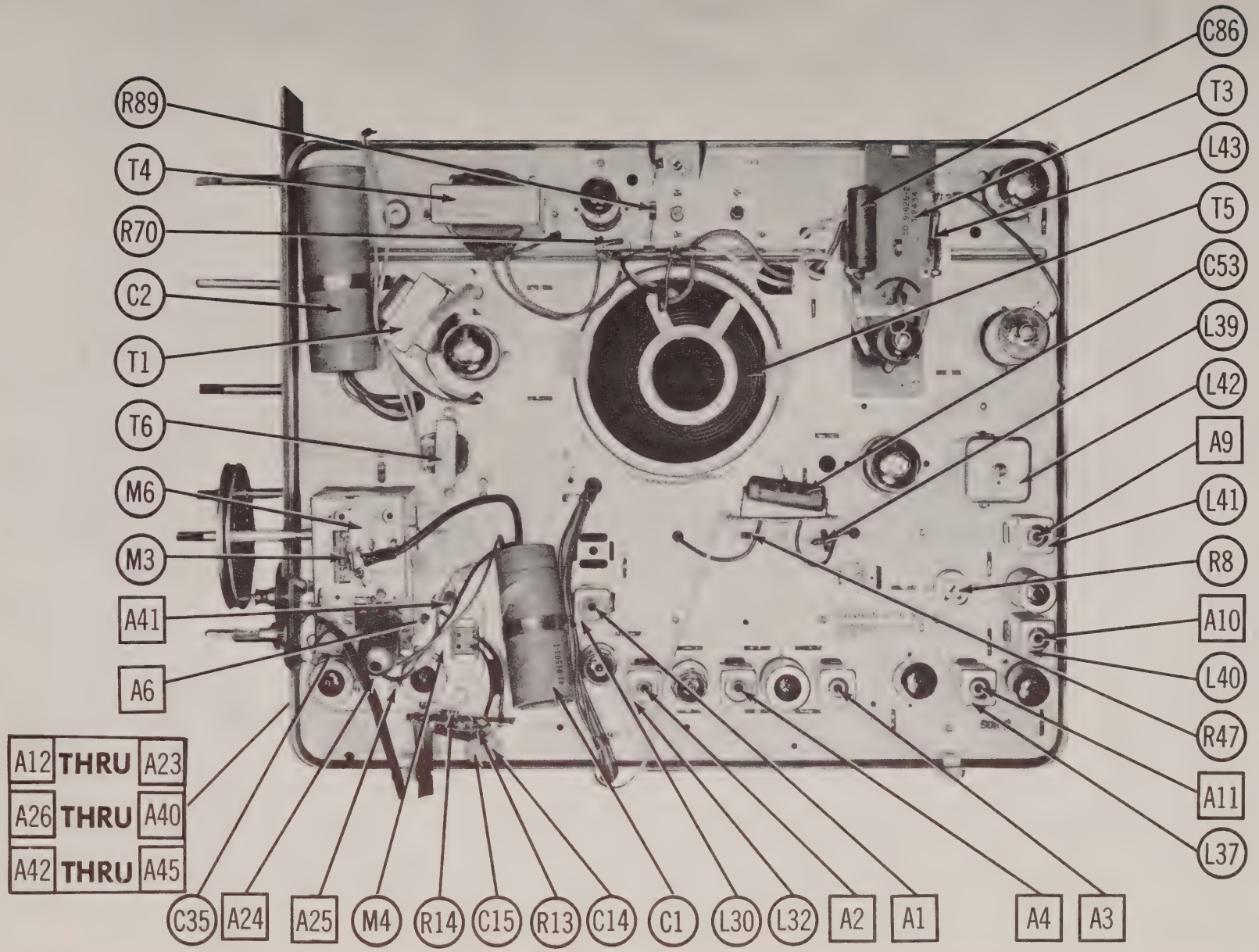
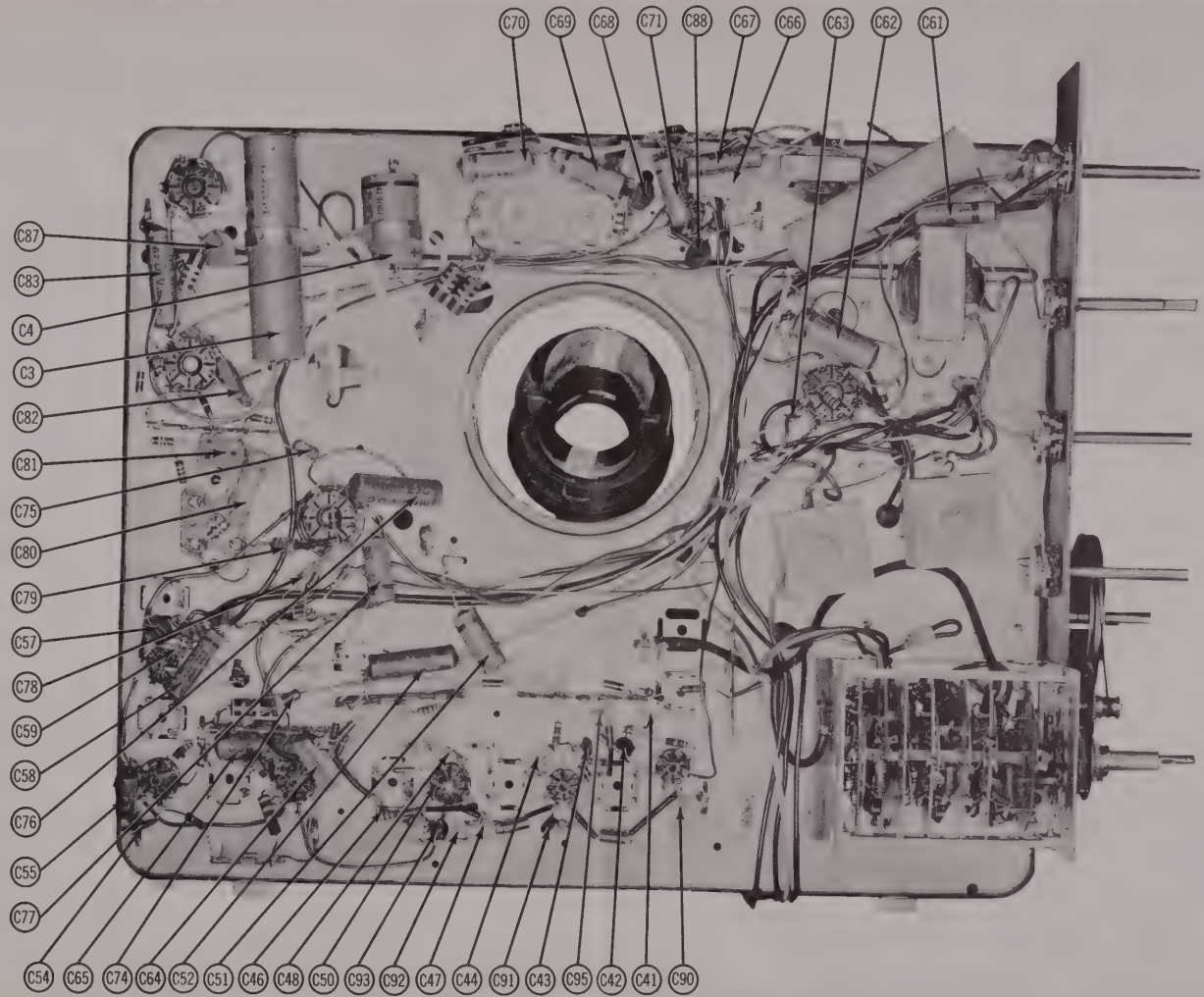

SYLVANIA MODEL
511 Series (Ch. 1-327-1, -2)
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
ALTERNATE CONNECTIONS FOR V-1 USED IN SOME VERSIONS
FILAMENT CONNECTIONS USED IN "VHF ONLY" MODELS
A PHOTOFACT STANDARD NOTATION SCHEMATIC
SYLVANIA MODEL
511 Series (Ch. 1-327-1, -2)



CHASSIS TOP VIEW

511 Series (Ch. 1-527-1, -2)

SYLVANIA MODEL



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PROPERTY OF
L. F. PLANKENHORN

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped and kept away from chassis.
Adjustments in IF strip may be adjusted from top or bottom of chassis using a hex alignment tool.
When two coils are wound on the same form, adjust slugs to insure maximum separation between the two cores. Allow 15 minute warm-up period for receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4 volt bias supply to the ungrounded side of C51. Connect the positive lead to chassis.
Use only enough sweep generator output to provide usable pattern on scope. Use high scope gain.
Keep leads short as possible.
Use shielded leads between chassis and alignment equipment.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube (V3). Low side to chassis.	Not used	47.25MC (Unmod)	Any non-interfering channel	Use VTVM. DC probe to point (A). Low side to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	"	41.25MC	"	"	A2	"
3.	"	"	"	44.0MC	"	"	A3	Adjust for maximum deflection. Attenuate generator to maintain 1 to 2 volts at VTVM.
4.	"	"	"	45.3MC	"	"	A4	"
5.	"	"	"	42.6MC	"	"	A5	"
6.	.005MFD	High side thru .005MFD capacitor to pin 1 (grid) of V4. Low side to chassis.	43.5MC (10MC Swp)	42.4MC 45.75MC 41.25MC	"	Vert. Amp. thru 33KΩ to point (A). Low side to chassis.		Check for response similar to Fig. 1. If necessary retouch A3, A4 and A5 for desired response. A2 places 41.25MC marker.
7.	Direct	High side to an ungrounded tube shield floating over converter tube (V3). Low side to chassis.	"	42.6MC 45.75MC	"	"	A6, A7	Adjust for response similar to Fig. 2. Check position of trap markers on response curve (Fig. 2). If necessary, retouch A1 for 47.25MC trap marker and A2 for 41.25MC trap marker. If trap readjustments are made, recheck 42.6MC and 45.75MC markers. If necessary, retouch A6 and A7 for desired response.

4.5MC TRAP ALIGNMENT

Set volume control at a low level.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.01MFD	High side to pin 8 (grid) of 5AN8 (V7A). Low side to chassis.	Not used	4.5MC (400∿Mod)	Any non-interfering channel	Vert. Amp. thru detector (Fig. 3) to pin 11 (cathode) of picture tube. Low side to chassis.	A8	Adjust for MINIMUM 400∿ indication on scope.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR, AM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set volume control at low level.
Remove bias supply from ungrounded side of C51.
Replace tube shield over V3 to its normal position.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.01MFD	High side to pin 8 (grid) of 5AN8 (V7A). Low side to chassis.	4.5MC (400∿Mod) (50KC Swp)	4.5MC	Any non-interfering channel	Across secondary of audio output transformer (T6).	A9	Set buzz control (R8) 60 degrees from maximum clockwise rotation. Adjust A9 for maximum 400∿ indication on scope.
10.	"	"	"	"	"	"	A10, A11	Attenuate generator output so that signal level is below the limiting level of the 3BN6 as evidenced by background hiss and noise. Adjust A10 and A-11 for maximum response on scope.
11.	"	"	Not used	4.5MC (400∿Mod)	"	"	R8	Use high generator output and adjust R8 for MINIMUM 400∿ indication on scope.
12.	"	"	4.5MC (400∿Mod) (50KC Swp)	4.5MC	"	"	A9	With volume at low level retouch A9 for maximum 400∿ indication on scope. Repeat steps 9, 10, 11 and 12. Remove test equipment. Tune in weakest TV station in that area and adjust R8 for MINIMUM buzz and hiss. Tune in strongest TV station in that area and adjust A9 for clearest sound.

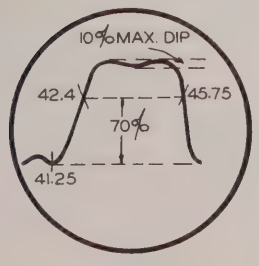


FIG. 1

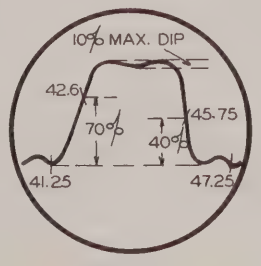


FIG. 2

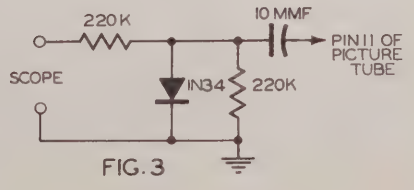


FIG. 3

SYLVANIA MODEL 511 Series (Ch. 1-527-1, -2)

PROPERTY OF
I. F. BLANKENSHIP

ALIGNMENT INSTRUCTIONS (cont)

VHF TUNER OSCILLATOR ALIGNMENT FOR CHASSIS 1-527-3

Use an isolation transformer to protect the test equipment.
Use only enough sweep generator output for usable pattern on scope. Use high scope gain.
Keep leads from test equipment to tuner alignment connections short as possible.
Leads between chassis and alignment equipment should be shielded.
Tuner shield must be in place.
Connect the negative lead of a 2.5 volt bias supply to junction of green wire to tuner and R37. Connect positive lead to chassis.
Unsolder primary lead of L33 from pin 5 of V4. Connect a 330Ω resistor from pin 5 of V4 to the B+ end of L33 (terminal #4 on L33).
During alignment the use of two marker generators is required. Generator #1 (IF) is coupled loosely to one side of the antenna terminals. If sweep generator has a built-in marker generator, it should be used as marker generator #2 (RF). If not, connect a second marker generator (RF) to the other side of the antenna terminal coupled loosely. Use low marker generator output to avoid distortion of response curve.
Connect the synchronized sweep voltage from the sweep generator to the horisontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC (RF marker) 45.75MC (IF marker)	13	Vert. Amp. thru detector (Fig. 6) to pin 5 (plate) of V4. Low side to chassis.	A12	Adjust so that RF and IF markers coincide as in Fig. 5. Curves may not be symmetrical until RF alignment is complete
14.	"	"	201MC (10MC Swp)	199.25MC 45.75MC	11	"	A13	"
15.	"	"	189MC (10MC Swp)	187.25MC 45.75MC	9	"	A14	"
16.	"	"	177MC (10MC Swp)	175.25MC 45.75MC	7	"	A15	"
17.	"	"	85MC (10MC Swp)	83.25MC 45.75MC	6	"	A16	"
18.	"	"	79MC (10MC Swp)	77.25MC 45.75MC	5	"	A17	Compress or expand coil until markers coincide as in Fig. 5.
19.	"	"	69MC (10MC Swp)	67.25MC 45.75MC	4	"	A18	Adjust so that RF and IF markers coincide as in Fig. 5.
20.	"	"	63MC (10MC Swp)	61.25MC 45.75MC	3	"	A19	Compress or expand coil until markers coincide as in Fig. 5.
21.	"	"	57MC (10MC Swp)	55.25MC 45.75MC	2	"	A20	"

VHF TUNER RF ALIGNMENT FOR CHASSIS 1-527-2

Care must be exercised not to disturb the preceeding aligned coil increments.
Disconnect R20 from chassis ground and connect a 1KΩ resistor from loose end of R20 and connect other end of 1KΩ (added) resistor to chassis.
Connect bias as under "VHF Tuner Oscillator Alignment".
Loosen VHF tuner from chassis, stand tuner in a position to make adjustments.
Connect a clip lead from VHF tuner to main chassis.
If a separate marker generator is used, couple it loosely to one side of antenna terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
22.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru detector (Fig. 6) to junction of R20 and 1KΩ (added) resistor. Low side to chassis.	A21, A22, A23	Adjust A21 for maximum mid-band height adjust A22 for flat-topped response. Adjust A23 for proper position of markers. See Fig. 7. Picture carrier should be 100%. Sound carrier may be low as 70%.
23.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A24, A25	Adjust for symmetrical response as in Fig. 7.
24.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check each channel for response similar to Fig. 7. If not within limits repeat steps 22 and 23. If necessary, make compromise adjustments of A21, A22, A23, A24 and A25 for best acceptable response.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
25.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A26, A27, A28	Adjust A26 for maximum mid-band height . Adjust A27 for flat-topped response. Adjust A28 for proper marker position as in Fig. 7.
26.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	A29, A30, A31	Compress or expand coil turns for response curve similar to Fig. 7.
27.	"	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"	A32, A33, A34	"
28.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	63MC (10MC Swp)	61.25MC 65.75MC	3	Vert. Amp. thru detector (Fig. 6) to junction of R20 and 1KΩ (added) resistor. Low side to chassis.	A35, A36, A37	Compress or expand coil turns for response curve similar to Fig. 7.
29.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A38, A39, A40	"

30. Recheck all channels for flat-topped response. If necessary, retouch A21 thru A40 in order given. A dip of 30% is permissable on all channels. Remove 330Ω resistor from plate of V4 to B+. Restore connection to L32. Remove resistor from tuner and reconnect R20 to chassis.

UHF TUNER ALIGNMENT

Video band pass should be checked before attempting UHF Alignment. Refer to step 7 and Fig. 2. Then switch VHF tuner switch to UHF position.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

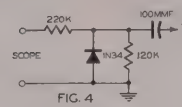


FIG. 4

FIG. 5

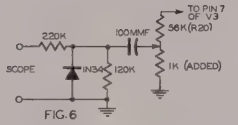


FIG. 6

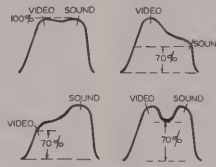


FIG. 7

UHF TUNER OUTPUT CIRCUIT ALIGNMENT

Remove cover over mixer crystal (1N82A) located on top of UHF tuner. Remove 1N82A crystal. Solder one end of a 270Ω resistor to the L7 side of crystal holder. Connect high side of sweep generator to other end of 270Ω resistor. If sweep generator has no built-in marker, loosely couple a separate marker generator near sweep generator connection near the (added) 270Ω resistor.
Connect bias as under "Video IF Alignment".
Use only enough sweep generator output for usable indication on scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
31.	270Ω Resistor	High side to loose end of 270Ω. Other end of 270Ω to L7 aside of crystal holder. Low side to chassis.	43.5MC (10MC Swp)	42.6MC 45.75MC	UHF (Tuning cap. fully meshed)	Vert. Amp. thru 33KΩ to point A. Low side to chassis.	A41	Adjust for response curve similar to Fig. 3. Remove test equipment and 270Ω from crystal holder.

UHF OSCILLATOR ALIGNMENT

Adjust A43 by bending tab in or out.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
32.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	460MC (Unmod)	14 (UHF cap. fully meshed)	DC probe to point A. Low side to chassis.	A42	Adjust for maximum deflection.
33.	"	"	900MC	83 (UHF tuning cap. fully open)	"	A43	Adjust for maximum deflection. Recheck step 32. Replace crystal and shield over crystal.

UHF PRESELECTOR ALIGNMENT

Connect bias as under "Video IF Alignment". Couple separate marker generator loosely to pin 1 (grid) of V4.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
34.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	900MC	42.6MC 45.75MC	UHF (Tuning cap fully open)	Vert. Amp. thru 33KΩ to point A. Low side to chassis.	A44	Adjust by bending tab (A44) in or out from RF line for response similar to Fig. 2, with markers properly in place.
35.	"	"	460MC to 900MC	"	14 thru 83	"		Turn tuner and sweep generator simultaneously thru the entire UHF range and observe response curve which should be similar to Fig. 2. Adjust A44 for best compromise, tilt and dip. If further adjustment is necessary, adjust by SLIGHTLY bending RF rotor plates. Make adjustment at point where rotor is just meshing with stator. Recheck entire range to insure adjustment that one frequency doesn't affect the other too much. Do not readjust A6 or A7 to remove excessive dip or tilt.

VHF TUNER OSCILLATOR ALIGNMENT FOR CHASSIS 1-527-1

Same instructions as under "VHF Oscillator Alignment For Chassis 1-527-2".

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
36.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC (RF marker) 45.75MC (IF marker)	13	Vert. Amp. thru detector (Fig. 6) to pin 5 (plate) of V4. Low side to chassis.	A45	Adjust so that RF and IF markers coincide as in Fig. 5. Curves may not be symmetrical until RF alignment is complete.
37.	"	"	201MC (10MC Swp)	199.25MC 45.75MC	11	"	A46	"
38.	"	"	189MC (10MC Swp)	187.25MC 45.75MC	9	"	A47	"
39.	"	"	177MC (10MC Swp)	175.25MC 45.75MC	7	"	A48	"
40.	"	"	85MC (10MC Swp)	83.25MC 45.75MC	6	"	A49	"
41.	"	"	79MC (10MC Swp)	77.25MC 45.75MC	5	"	A50	Compress or expand coil turns until markers coincide as in Fig. 5.
42.	"	"	69MC (10MC Swp)	67.25MC 45.75MC	4	"	A51	Adjust so that RF and IF markers coincide as in Fig. 5.
43.	"	"	63MC (10MC Swp)	61.25MC 45.75MC	3	"	A52	Compress or expand coil turns until markers coincide as in Fig. 5.
44.	"	"	57MC (10MC Swp)	55.25MC 45.75MC	2	"	A53	"

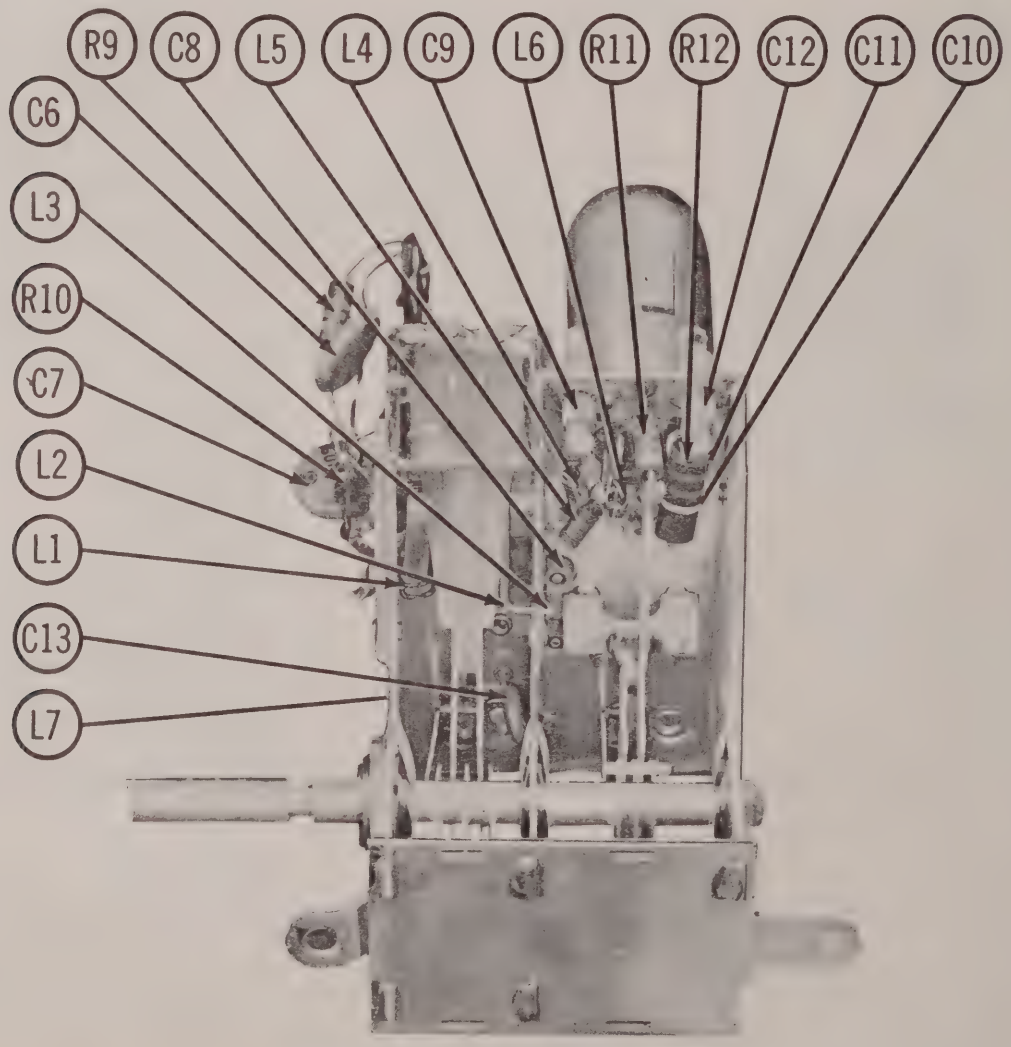
SYLVANIA MODEL 511 Series (Ch. 1-527-1, -2)

ALIGNMENT INSTRUCTIONS (cont)

VHF TUNER RF ALIGNMENT FOR CHASSIS 1-527-1

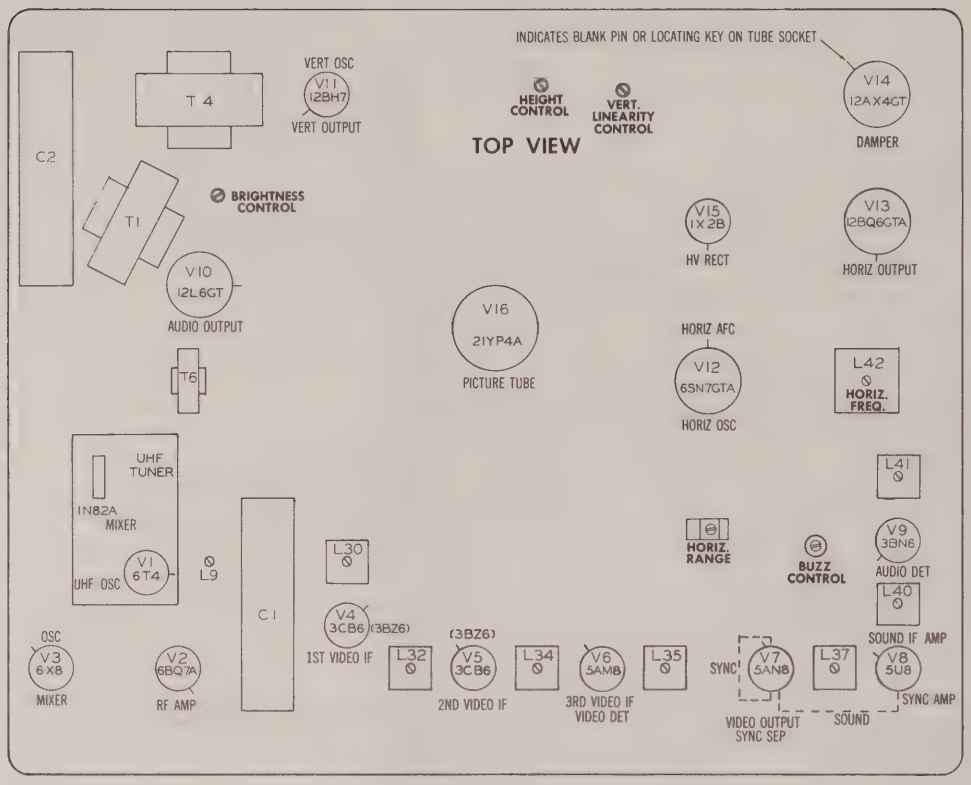
Same instructions as under "VHF RF Alignment For Chassis 1-527-2".

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
45.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru detector (Fig. 6) to junction of 56KΩ and 1KΩ (added) resistor. Low side to chassis.	A54, A55	Adjust A54 for maximum mid-band height. Adjust A55 for proper marker position. See Fig. 7 for acceptable response curve.
46.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check each channel for response curve similar to Fig. 7, If not within limits repeat step 45. If necessary, make compromise adjustments of A54 and A55 for best acceptable response.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
47.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A56, A57	Adjust A56 for maximum mid-band height. Adjust A57 for proper marker position (Fig. 7).
48.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	A58, A59	Compress or expand coil turns for curve similar to Fig. 7.
49.	"	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"	A60, A61	"
50.	"	"	63MC (10MC Swp)	61.25MC 65.75MC	3	"	A62, A63	"
51.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A64, A65	"



UHF TUNER

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

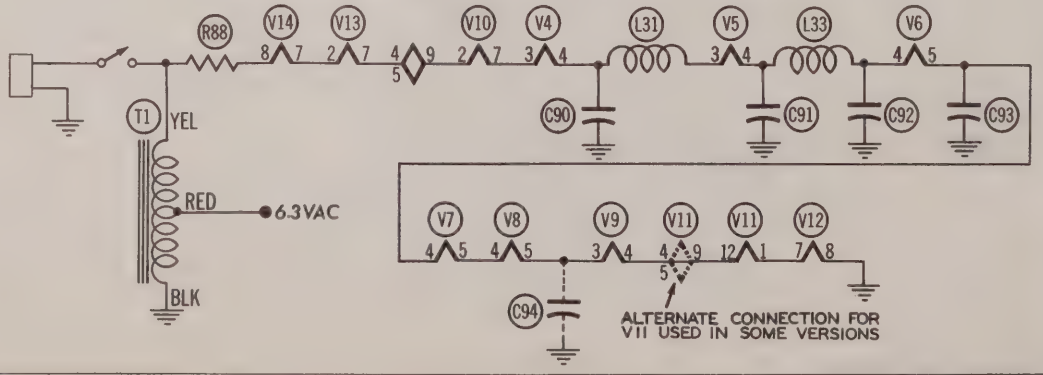
POWER SUPPLY FAILURE
No raster, no sound - Selenium Rectifiers (M1 & M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, V6, V10 (V1 UHF only)
No pic, no sound, has snow - V2, V3, V4
No pic, has sound, has raster - V7, V16
Has pic, no sound - V8, V9, V10

SYNC FAILURE
No vert. sync - V8, V11
No horiz. sync - V8, V12
No vert. or horiz. sync - V7, V8

SWEEP FAILURE
No raster, has sound - V12, V13, V14, V15, V16
No vertical deflection - V11
Poor vert. linearity or foldover - V11
Poor horiz. linearity or foldover - V12, V13, V14
Narrow picture - V12, V13, V14, V15, M1, M2
Vert. off freq. - V8, V11
Horiz. off freq. - V8, V12

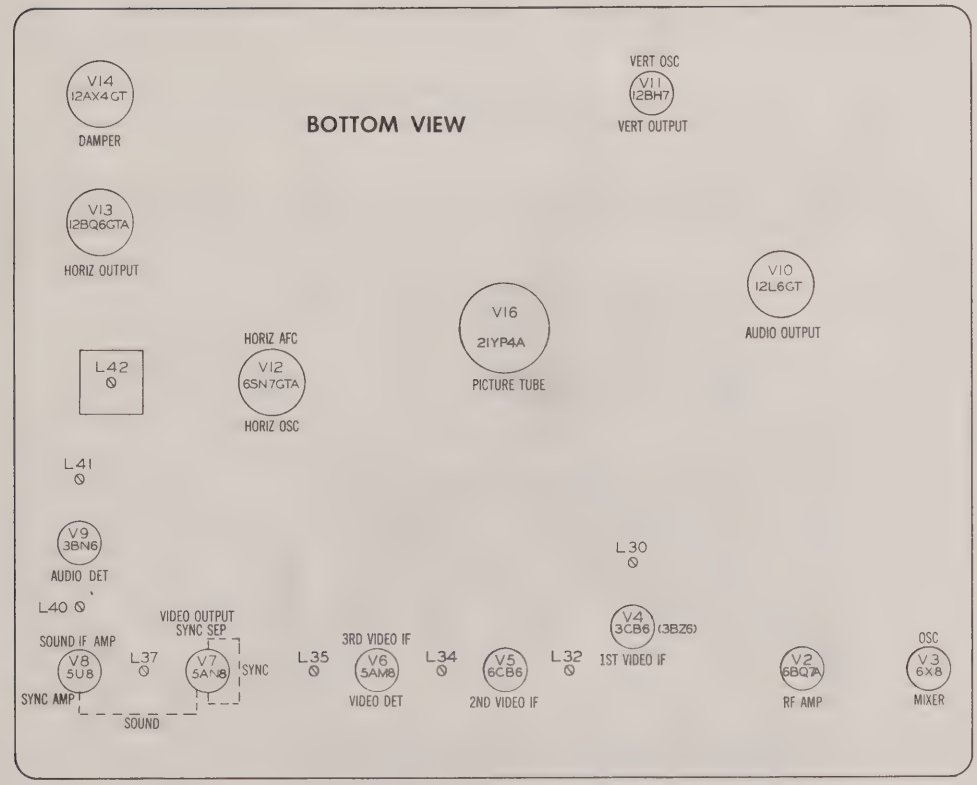
NOTE: Since this receiver employs tubes used in series-parallel filament network, an open filament in any tube in series may cause the set to be inoperative. (See circuit below).



RESISTANCE MEASUREMENTS

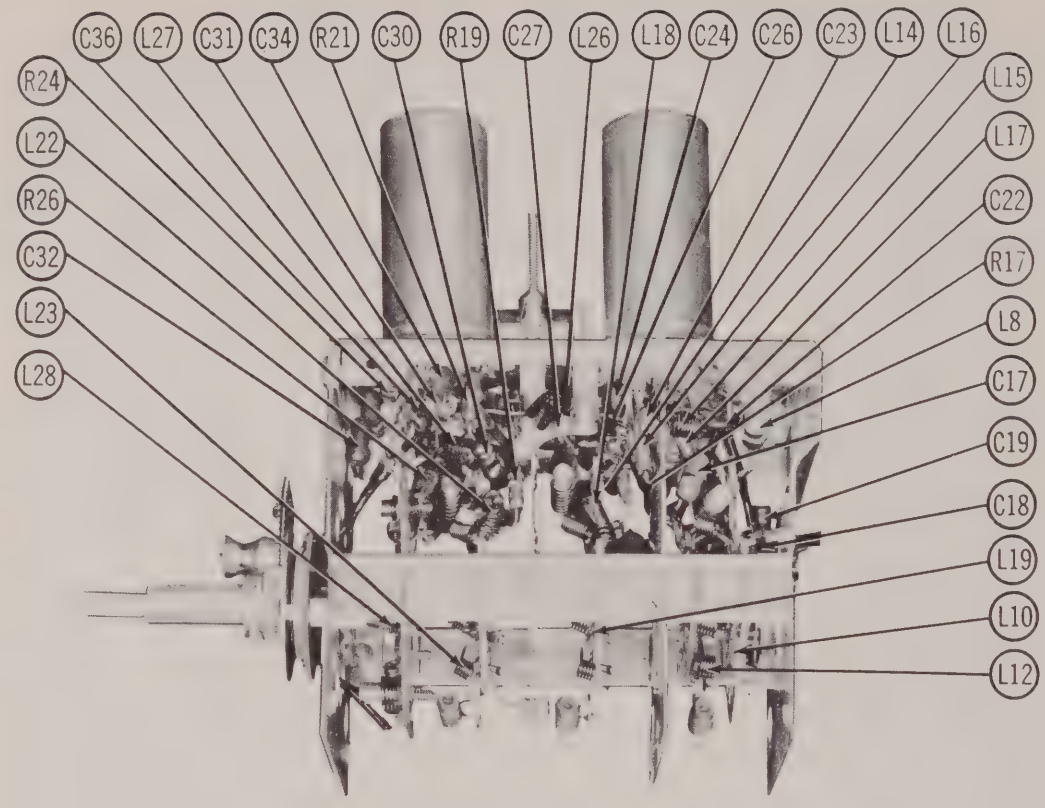
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6T4	*■2.2KΩ	8.2KΩ	0Ω	.1Ω	0Ω	8.2KΩ	*■2.2KΩ		
V 2	6BQ7A	■1.2KΩ	1Meg	0Ω	0Ω	.1Ω	■1.7KΩ	1Meg	.1Ω	0Ω
V 3	6X8	0Ω	27KΩ	■3.3KΩ	0Ω	.1Ω	0Ω	56KΩ	■10KΩ	■3.3KΩ
V 4	3CB6	1Meg	47Ω	9Ω	8Ω	■1.8KΩ	■1.8KΩ	0Ω		
V 5	3CB6	1Meg	47Ω	8Ω	7Ω	■1.8KΩ	■1.8KΩ	0Ω		
V 6	5AM8	270Ω	.1Ω	■1.4KΩ	7Ω	6Ω	■680Ω	.2Ω	3.3KΩ	0Ω
V 7	5AN8	■2.2Meg	2.2Meg	0Ω	6Ω	5Ω	†5.6KΩ	†33KΩ	1Meg	500Ω
V 8	5U8	■12KΩ	1.2Ω	■18KΩ	5Ω	4Ω	■18KΩ	150Ω	0Ω	22KΩ
V 9	3BN6	500Ω	3Ω	4Ω	3Ω	■5.6KΩ	7.2Ω	†330KΩ		
V 10	12L6GT	TP	11Ω	†270Ω	†55Ω	300KΩ	NC	9Ω	350KΩ	
V 11	12BH7	▲800Ω	▲3Meg	11KΩ	12Ω	12Ω	▲3Meg	650KΩ	0Ω	11Ω
V 12	6SN7GTA	750KΩ	†100KΩ	300KΩ	350KΩ	†28KΩ	0Ω	2Ω	0Ω	
V 13	12BQ6GTA	NC	15Ω	TP	†18KΩ	470KΩ	NC	12Ω	22Ω	TOP CAP ▲17Ω
V 14	12AX4GT	NC	NC	440KΩ	NC	†55Ω	NC	15Ω	16Ω	
V 15	1X2B		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲335Ω
V 16	21YP4A	2Ω	820KΩ	PIN 6 350KΩ	PIN 10 ▲350KΩ	PIN 11 ■500KΩ	PIN 12 3Ω			

* MEASURED IN "UHF" POSITION
■ MEASURED FROM 140V LINE
† MEASURED FROM OUTPUT OF M2.
▲ MEASURED FROM PIN 3 OF V14
TP - TIE POINT
NC - NO CONNECTION

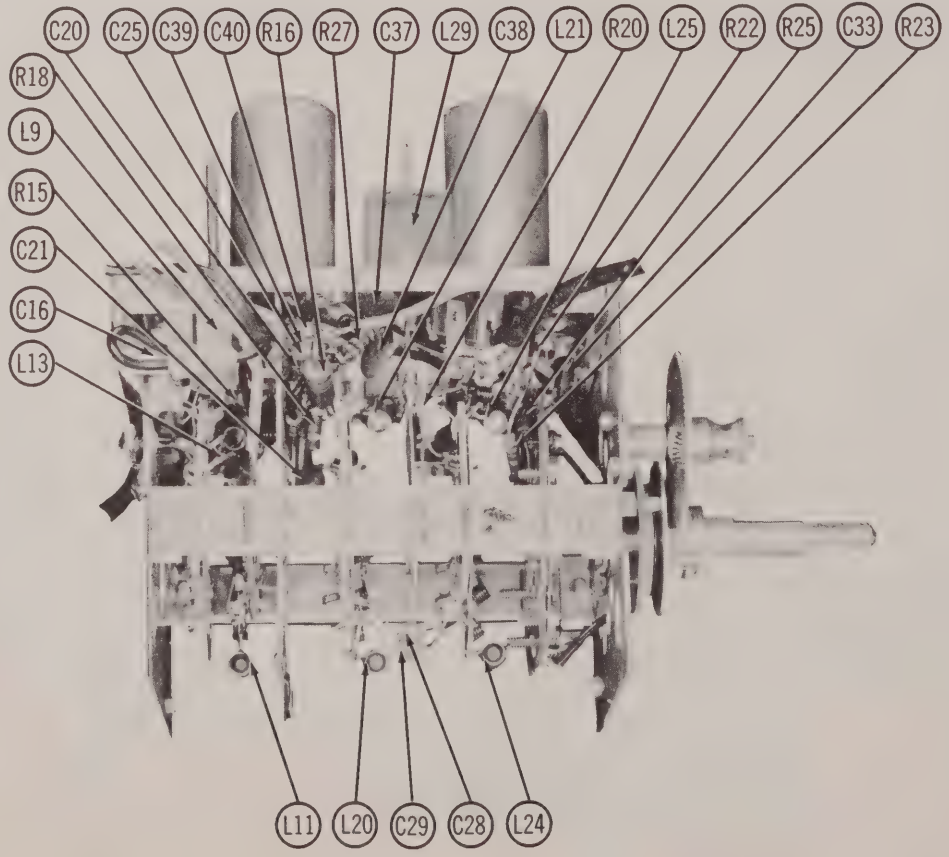


TUBE PLACEMENT CHART

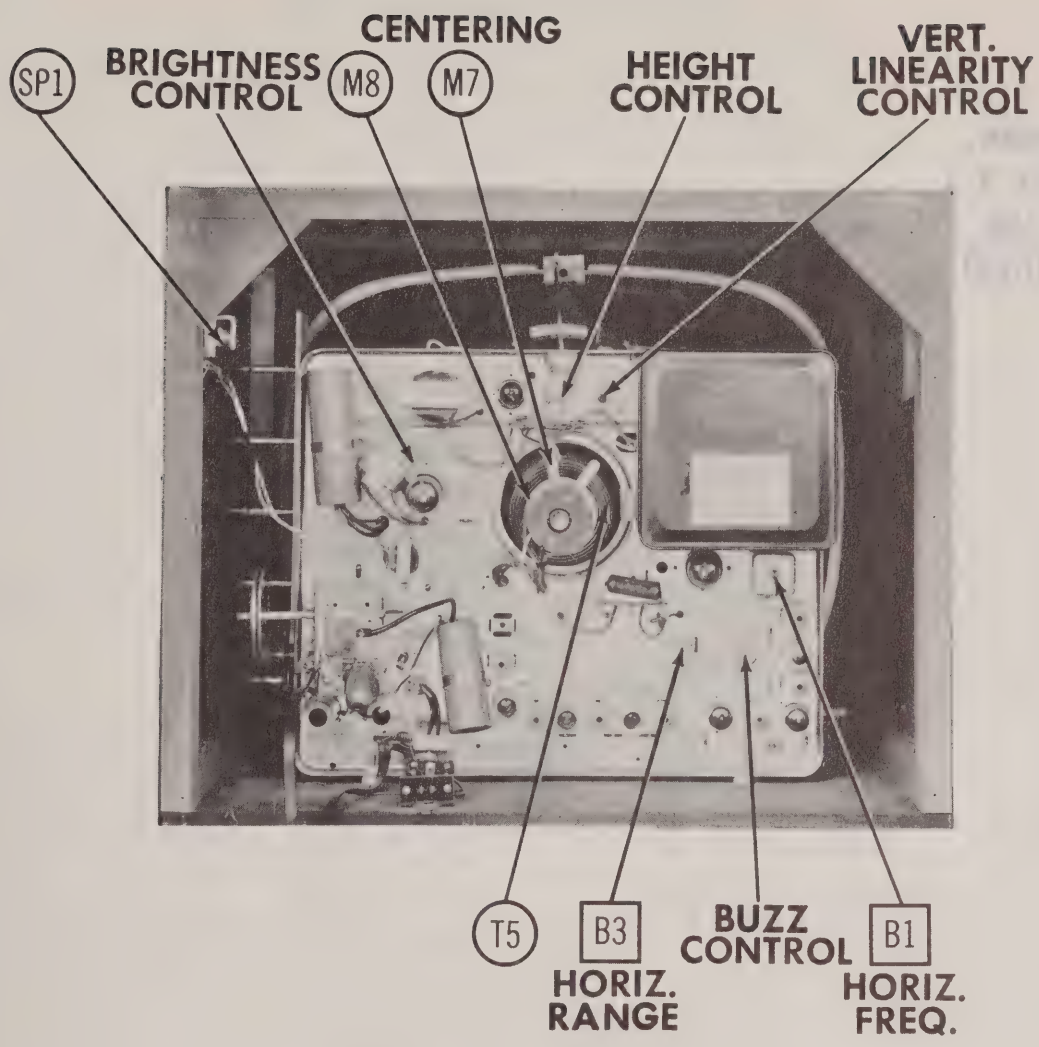
SET 289 FOLDER 12



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

1. Set contrast control for normal contrast.

2. Pre-set the horizontal range trimmer (B3) one-half turn from maximum clockwise position.

3. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency slug (B1) until picture synchronizes horizontally.

4. Connect the vertical amplifier of the oscilloscope thru a 5MMF capacitor to terminal "C" of L42. Connect low side to chassis. Adjust the horizontal waveform slug (B2) until waveform similar to Fig. 8 is obtained. While making this adjustment keep the picture in sync with the horizontal hold control and if necessary, B1 and B3.

5. Remove scope from terminal "C" of L42.

6. Turn the horizontal hold control counter clockwise. Picture should remain in sync. Momentarily remove signal by switching off channel and back again. If less than 3 bars are present when switching off channel and back again, adjust B3 slightly clockwise until 3 or 4 bars are present when switching off channel and back again. If more than 3 or 4 bars are present adjust B3 counter clockwise. Repeat above until the effective pull-in range of the horizontal hold is from 60 to 120 degrees.

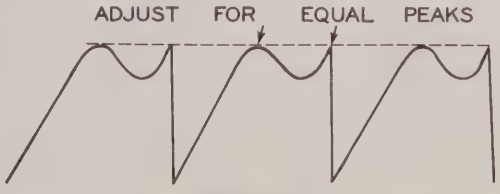


FIG. 8

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage."

INSUFFICIENT SWEEP

Check by substitution V13 and V14. Check M1 and M2. Check C81, C82, R83, R84, T3, T5A and other associated components.

DRIVE LINES

Check by substitution V13 and V14. Check C81, C82, R84, T3, T4A and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V13 and V14. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines."

PIE CRUST EFFECT

Check by substitution V12, V13 and V14. Check C77, C78 and R74 for open. Check L42, R76, R3 and other associated components.

XMAS TREE EFFECT

Check by substitutuon V12, V13 and V14. Check T3 and T5 for internal arcing. Check C76, C75, R79 and other associated components.

VERTICAL

LOSS OF SWEEP

Substitute V11. Check waveform W7.

If Satisfactory	If Unsatisfactory
Check T4, T5B, C4, C2D, R67, R68 and other associated components.	Check T2, C68, C72, R7 and other associated components.

INSUFFICIENT SWEEP

Substitute V11. Check height and vertical linearity controls for proper operation. Check T2, T4 and other associated components.

COMPRESSED AT BOTTOM

Substitute V11. Check T2, R7, C68 and other associated components.

COMPRESSED AT TOP

Substitute V11. Check R67, R68, R6 C2D and other associated components.

FOLDS

Substitute V11. Check T2, C69, C70, T4, T5B and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V7 and V8. Check C64, C65, R57, R61, R60 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V11. Check vertical integrator network. Check T2, R2, C68 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Substitute V12. Check C74, C76, C77, C78, R74, R76, L42 and other associated components.

HORIZONTAL BENDING

Check by substitution V7, V8 and V12. Check components associated with V12.

VIDEO

LOSS OF VIDEO

Substitute V7. Check C52, C53, C2C, R45, R46 and other associated components.

SOUND BARS (4.5MC Beat)

Adjust tuner fine tuning for best sound and picture. Check adjustment A8. Check video IF Alignment.

POOR CONTRAST

Substitute V7. Check contrast control. Check L38, L39, C52, C53 and other associated components.

NEGATIVE PICTURE

Substitute V7. Check picture tube. Check C52, C53, R45, R46 and other associated components.

SMEAR

Substitute V7. Check L36, L38, L39, C52, C53 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V2, V4, V5, V6 and V7 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9 and V10. Check stages V9 and V10 using audio signal generator. Apply audio signal across C59.

If Satisfactory	If Unsatisfactory
Check audio detector and audio IF stages for component failure or change of value.	Check C59, C61, C62, C63, R53, R54, T6, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustments A9 and R8 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or no Sound."

POWER

DEAD SET

If filaments fail to light, check all tubes. These tubes are connected in series. Check switch on volume control and R88. If filaments light check M1 and M2. Check C1 and R87. Check B+ filter and decoupling network.

SMALL AND/ON DIM PICTURE

Check M1, M2 and R87. Check B+ filter and decoupling network.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		SYLVANIA PART No.	STANDARD REPLACEMENT		
V1	UHF Osc.	6T4	6T4	7DK	
V2	RF Amp.	6BQ7A	6BQ7A	9AJ	
V3	Mixer-Osc.	6X8	6X8	9AK	
V4	1st. Video IF Amp.	3CB6	3CB6	7CM	3BZ6 used in chassis 1-527-2
V5	2nd. Video IF Amp.	3CB6	3CB6	7CM	3BZ6 used in chassis 1-527-2
V6	3rd. Video IF Amp. - Video Det.	5AM8	5AM8	9CY	
V7	Video Output - Sync Sep.	5AN8	5AN8	9DA	
V8	Sound IF Amp. - Sync Amp.	5U8	5U8	9AE	
V9	Audio Detector	3BN6	3BN6	7DF	
V10	Audio Output	12L6GT	12L6GT	7S	
V11	Vert. Osc. - Vert. Output	12BH7	12BH7	9A	
V12	Horiz. AFC - Horiz. Osc.	6SN7GTA	6SN7GTA	8BD	
V13	Horiz. Output	12BQ6GTA	12BQ6GTA	6AM	
V14	Damper	12AX4GT	12AX4GT	4CG	
V15	HV Rectifier	1X2B	1X2B	9Y	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	SYLVANIA PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V16	21YP4A ②	21YP4A ① 21YP4	21YP4A ① 21YP4	21YP4A ② 21YP4	21YP4A ① 21YP4	12L 12L	① Aluminized ② Silver screen

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	SYLVANIA PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1	140	300	161-0018			WS427	TD-150-300	S-200	
C2A	140	300	161-4016			WQ505	CDB-1008	Q-162	
B	200	150							
C	5	300							
D	30	150							
C3A	200	150	161-2013			WD345	TDL-205	D-088	
B	5	150							
C4	20	450	161-1017			TC75	TD-20-450	FM-4520	Note 1
C5	20	450	161-1017			TC75	TD-20-450	FM-4520	Note 2
C6	470	2000		DD30-471	3KV-471	DC30347			
C7	470	2000		DD30-471	3KV-471	DC30347			
C8	2-5.5								
C9	800			MFT-1000					
C10	800			DD-801	831-801	DC-521			
C11	800			DD-801	831-801	DC-521			
C12	800			MFT-1000					
C13	33			TCN-33	N750K-330				
C14	470	2000	174-04702	DD-471	3KV-471	DC30347			
C15	470	2000	174-04702	DD-471	3KV-471	DC30347			
C16	10			D6-100	831-100	UC-541			
C17	22			D6-220	831-220	UC-5422			
C18	5			D6-050	831-050	ZT-555			
C19	220			D6-221	811-221	UC-5322			
C20	800			MFT-1000					
C21	150			D6-151	811-151	UC-5315			
C22	150			D6-151	811-151	UC-5315			
C23	5			TCZ-4R7	NP0A-050	ZT-555			
C24	800			DD-801	831-801	DC-521			
C25	800			MFT-1000					
C26	800			DD-801	831-801	DC-521			
C27	.36								
C28	1.2								
C29	3.9								
C30	33			D6-330	GP1K-330	UC-5433			
C31	1.8								
C32	18								
C33	8								
C34	800			DD-801	831-801	DC-521			
C35	470			MFT-500					
C36	5			D6-050	GP1K-050	ZT-555			
C37	130			TCZ-130	NP0-333-131				
C38	1000			DD-102	801-001	DC-521			
C39	800			MFT-1000					
C40	800			MFT-1000					
C41	1000		166-1000D	DD-102	811-001	DC-521		K-1210	
C42	1000		166-1000D	DD-102	811-001	DC-521		K-1210	
C43	1000		166-1000D	DD-102	811-001	DC-521		K-1210	
C44	1000		166-1000D	DD-102	811-001	DC-521		K-1210	
C45	1000		166-1000D	DD-102	811-001	DC-521		K-1210	Note 3
C46	1000		166-1000D	DD-102	811-001	DC-521		K-1210	
C47	1000		166-1000D	DD-102	811-001	DC-521		K-1210	
C48	1000		166-1000D	DD-102	811-001	DC-521		K-1210	
C49	4700		166-4700D	DD-472	811-0047	DC-525		C-1247	Note 3
C50	10		166-0010P	TCZ-10	NP0A-100	ZT-541			
C51	.22	100	160-06022			PT4022	IMP2-P22		
C52	.1	200	160-0601	DF-104		PT401	IMP2-P1	330201	
C53	.1	600	160-0601	DF-104		PT601	IMP6-P1	330601	
C54	4700		166-4700D	DD-472	811-0047	DC-525		C-1247	
C55	.01	600	160-0611	D6-103	811-01	PT611	IMP6-S1	330611	
C56	4700		166-4700D	DD-472	811-0047	DC-525		C-1247	Note 3
C57	4700		166-4700D	DD-472	811-0047	DC-525	IMP6-D47	C-1247	
C58	.01	600	160-0611	D6-103	811-01	PT611	IMP6-S1	330611	
C59	1000		166-1000D	DD-102	801-001	DC-521		K-1210	
C60	4700		166-4700D	DD-472	811-0047	DC-525		C-1247	Note 3
C61	.022	400	160-06022	DF-203	817-02	PT4122	IMP4-S22	3304122	
C62	.022	600	160-06022	DF-203	817-02	PT6122	IMP6-S22	3306122	
C63	1000		166-1000D	DD-102	801-001	DC-521		K-1210	Note 3

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA SYLVANIA PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C64A	270				811-271				
B	10000		#190-0018	#PC-260	811-01				
C	25				831-250				
C65	.047	600	160-06147	DF-503		MPE-047	3306147		
C66A	5000		#190-0019	#PC-106	811-005	DC-535	C-1250		
B	5000				811-005	DC-535	C-1250		
C67	.01	600	160-0611	D6-103	GPR-333-103	MPE-01	33061		
C68	4700		166-4700D	DD-472	811-0047	DC-525	C-1247		
C69	.047	600	160-06147	DF-503		MPE-047	3306147		
C70	.033	500	160-06133	DF-303		PT4133	MPE-033	33061	
C71	.00047	1000	159-0030	MD-471	IR5KV-471	MCK1347	MPE-T9	330633	Note 4
C72	100		163-0030	DD-101	801-101	UC-581		K-1310	Note 5
C73	220		174-0230	DD-221	811-221	UC-5323		K-1322	Note 5
C74	22		166-0220						
C75	33		160-0033P	TCE-33	MPOL-330	ST-5433		KR-1433	
C76	.047	600	160-06147	DF-503		PT6147	MPE-047	33061 47	
C77	.22	100	160-06023			PT6023	PMP3-P23	33061022	
C78	.022	200	160-06123	DF-303	817-02	PT4122	PMP4-S22	33041223	
C79	220	500	163-0330	TCS-221	MPO-335-221			KR-1422	
C80	.01	600	160-0611	D6-103	811-01	PT611	PMP4-01	330611	
C81	1300	500	163-1300					CR-1313	
C82	560	500	163-0560					KR-1256	
C83	.047	600	160-06147	DF-503		PT6147	MPE-047	33061 47	
C84	.22		160-06023			PT6023	PMP3-P23	33061022	Note 5
C85	.22		160-06023			PT6023	PMP3-P23	33061022	Note 5
C86	.1	600	160-0601	DF-104		PT601	PMP6-S1	330601	
C87	22	3000		DD30-220	3KV-220				
C88	4700		166-4700D	DD-472	811-0047	DC-535	PMP6-D47	C-1247	Note 6
C89	47	2000		DD30-470	3KV-470				
C90	1000		166-1000D	DD-102	801-001	DC-521		K-1210	
C91	1000		166-1000D	DD-102	801-001	DC-521		K-1210	
C92	1000		166-1000D	DD-102	801-001	DC-521		K-1210	
C93	1000		166-1000D	DD-102	801-001	DC-521		K-1210	
C94	4700		166-4700D	DD-472	811-0047	DC-525		C-1247	Note 3
C95	1000		166-1000D	DD-102	801-001	DC-521			Note 7

Note 1. Chassis 1-527-1 (Code C04 thru C07), and chassis 1-527-2 thru code C01 may use a 104PFD in this application.
Note 2. Not used in chassis 1-527-1 (initial production to code C04).
Note 3. Used only in chassis 1-527-1 (code C07) and chassis 1-527-2 (Code C01).
Note 4. Some versions may use .01MFD in this application (part #160-0611).
Note 5. Not used in chassis 1-527-1 (initial production to code C04).
Note 6. Not used in some versions.
Note 7. Not used in chassis 1-527-1 (code C07) and chassis 1-527-2 (Code C01).
† Items C64A, C64B, C64C, R56A, R56B and R56C are combined in one unit.
• Items C65A, C65B, R62A and R62B are combined in one unit.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	330KΩ	½	153-0688	Q15-133	A47-250K-Z	AB-511		Volume
B	Shaft		Not Req.	Not Req.	FS-3	AK-3		Attach to R1A
C	Switch		Not Req.	78-1	SWK-12	KB-1		Attach to R1A
R2A	1Meg with 350KΩ stop	½	153-0097		A47-750K-S	AB-56		Vert. Hold - Note 3
B	Shaft		Not Req.		FS-3	AK-3		
R3A	145KΩ with 70KΩ stop	½	153-0086	Q11-135	A47-75K-S	B-35	U-39	Horiz. Hold - Note 1
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	1500Ω	½	153-0083	Q11-109	A47-1500-S	AB-518	USL	Contrast
B	Shaft		Not Req.	Not Req.	FS-3	AK-3	Not Req.	Attach to R4A
R5A	5Meg	½	153-0093	Q11-141	A47-5Meg-S	AB-57	SU-67	Brightness
B	Shaft		Not Req.	RQ	FSB-1/4	AK-1	Not Req.	Attach to R5A
R6A	750Ω	½	153-0080	Q11-105	A47-750-S	AB-5	TA75LL	Vert. Linearity
B	Shaft		Not Req.	RQ	FSB-1/4	AK-1		Attach to R6A
R7A	5Meg with 1Meg stop	½	153-0093	Q11-141	A47-5Meg-S	AB-56	SU-67	Height - Note 2
B	Shaft		Not Req.	RQ	FSB-1/4	AK-1	Not Req.	Attach to R7A
R8	100Ω	1	152-0002		B5-100			Buzz - wire-wound

Note 1. Connect a 68KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 2. Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 3. Connect a 330KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SYLVANIA PART No.	IRC PART No.	NOTES
R9	470KΩ	½	181-0474	BTS-470K	
R10	470KΩ	½	181-0474	BTS-470K	
R11	330KΩ	½		BTS-330K	
R12	2300Ω	½		BTA-2300	
R13	470KΩ	½	181-0474	BTS-470K	
R14	470KΩ	½	181-0474	BTS-470K	
R15	22KΩ	½		BTS-22K	
R16	1200Ω	½		BTA-1200	
R17	1000Ω	½		BTS-1000	
R18	470Ω	½		BTS-470	
R19	330Ω	½		BTS-330	
R20	3300Ω	½		BTS-3300	
R21	56KΩ	½		BTS-56K	
R22	180KΩ	½		BTS-180K	
R23	3300Ω	½		BTS-3300	
R24	27KΩ	½		BTS-27K	
R25	82Ω	½		BTS-82Ω	
R26	6800Ω	½		BTS-6800	
R27	3300Ω	½		BTS-3300	
R28	1000Ω	½	181-0102	BTS-1000	
R29	10KΩ	½	181-0103	BTS-10K	
R30	1000Ω	½	181-0102	BTS-1000	
R31	47Ω 5%	½	181-04705	BTS-47 5%	
R32	1800Ω	½	181-0182	BTS-1800	
R33	10KΩ	½	181-0103	BTS-10K	
R34	1000Ω	½	181-0102	BTS-1000	
R35	47Ω 5%	½	181-04705	BTS-47 5%	
R36	1800Ω	½	181-0182	BTS-1800	
R37	270Ω	½	181-0271	BTS-270	
R38	680Ω	½	181-0681	BTS-680	
R39	10KΩ	½	181-0103	BTS-10K	
R40	680Ω	½	181-0681	BTS-680	
R41	1Meg	½	181-0305	BTS-1Meg	
R42	330KΩ	½	181-0333	BTS-330K	
R43	1Meg	½	181-0305	BTS-1Meg	
R44	47Ω	½	181-0470	BTS-47Ω	Note 1

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SYLVANIA PART No.	IRC PART No.	NOTES
R45	33KΩ	1	182-0333	BTA-33K	
R46	5600Ω	2	183-0563	BTB-5600	
R47	100KΩ	½	181-0104	BTS-100K	
R48	820KΩ	½	181-0824	BTS-820K	
R49	390KΩ	½	181-0394	BTS-390K	
R50	150Ω	½	181-0151	BTS-150	
R51	18KΩ	2	181-0183	BTS-18K	
R52	5600Ω	1	181-0563	BTA-5600	
R53	470Ω	½	181-0471	BTS-470	
R54	470KΩ	½	181-0474	BTS-470K	
R55	560KΩ	½	181-0564	BTS-560K	
R56A	10KΩ	½		BTS-10K	
B	330KΩ	½	‡ 180-0018	BTS-330K	
C	2.3Meg	½		BTS-2.3Meg	
R57	2.2Meg	½	181-0235	BTS-2.2Meg	Note 2
R58	22KΩ	½	181-0223	BTS-22K	
R59	180KΩ	½		BTS-180K	Note 3
R60	6800Ω	1	183-0682	BTA-6800	
R61	4700Ω	½	181-0473	BTS-4700	
R62A	22KΩ	½	#190-0019	BTS-22K	
B	10KΩ	½		BTS-10K	
R63	5600Ω	1	181-0563	BTS-5600	
R64	47KΩ	½	181-0473	BTS-47K	Note 4
R65	820KΩ	½	181-0824	BTS-820K	
R66	5600Ω	1	181-0822	BTS-8200	Note 4
R67	22KΩ	½	181-0223	BTS-22K	
R68	22KΩ	2	183-0223	BTB-22K	
R69	56KΩ	½	181-0563	BTS-56K	Note 4
R70	120Ω	½	181-0121	BTS-120	
R71	1000Ω	1	183-0102	BTA-1000	Note 4
R72	560KΩ	½	181-0564	BTS-560K	
R73	150KΩ	½	181-0154	BTS-150K	
R74	8200Ω	½	181-0822	BTS-8200	
R75	150KΩ	½	181-0154	BTS-150K	
R76	100KΩ	½	181-0104	BTS-100K	
R77	150KΩ	½	181-0154	BTS-150K	
R78	100KΩ	½	181-0104	BTS-100K	
R79	2.7Meg	½	181-0275	BTS-2.7Meg	
R80	18KΩ	½	181-0183	BTS-18K	
R81	27KΩ	½	181-0273	BTS-27K	
R82	470KΩ	½	181-0474	BTS-470K	
R83	22Ω	2	181-0220	BTS-22	
R84	18KΩ	2	183-0183	BTB-18K	
R85	120Ω	2	183-0121		Note 4
R86	1000Ω	1	181-0102	BTS-1000	Note 6
R87	7.5Ω	5	187-0028		Note 6
R88	58.4Ω 5%	25	187-0032		Note 6
R89	470KΩ	½	181-0474	BTS-470K	Note 7
R90	33KΩ	½	181-0333	BTS-33K	Note 2

† Items R56A, R56B, R56C, C64A, C64B and C64C* are combined in one unit.
• Items R62A, R62B, C65A, C65B are combined in one unit.
Note 1. Not used in chassis 1-527-1 (Code C04 thru C07) and chassis 1-527-2 (thru code C01).
Note 2. Chassis 1-527-1 (Code C05 thru C07) may use a 390KΩ resistor in this application.
Note 3. Not used in some versions.
Note 4. Not used in chassis 1-527-1 (initial production to Code C04).
Note 5. Chassis 1-527-1 (Code C03) may use a 56KΩ resistor in this application.
Chassis 1-527-1 (Code C04 thru C07) and chassis 1-527-2 may use a 22KΩ resistor in this application (thru Code C01).
Note 6. Chassis 1-527-1 (initial production to Code C04) may use two 150Ω, 5 watt resistors in parallel in this application.
Note 7. Not used in chassis 1-527-1 (initial production to Code C01).

TRANSFORMER (FILAMENT)

ITEM No	RATING PRI	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC			141-0063 ②					21P08 ①	
	④-.08A									
	tap ④									
	6.3VAC									
	⑤1.05A									

① Separate 6.3V winding.
② Used in chassis with UHF tuner only.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	RCA PART No.	Ram PART No.	Stancor TYPE No	Thordarson PART No.	Triad PART No
T2	Vert.Osc.Trans.	242-0003							
T3	Horiz.Output Trans.	241-0025	FB418 *①	HVO-9 *①	230T1 *①	X060 * ①	A-8363 *①②	FLY-25 * ①	D-48 *①
T4	Vert.Output Trans.	241-0024	Z1808K①②	A-308①②		V306①②	A-8140①②	26S95①②	A-103X①②
T5A	Yoke-Horiz.(25MH)	100-0019 ④ ⑤	DF603 ⑦ ⑧	MDF-74 ⑦ ⑧ ⑨ ⑩	214D1 ⑦ ⑧	Y70F25/3 ⑦ ⑧ ⑨	DY-10A ⑦ ⑧	Y-10 ⑦ ⑧	Y-30-1 ⑦ ⑧
B	Vert.(3.3MH)	100-0022 ④ ⑤							

① Drill new mounting hole(s).
② Connect as auto transformer.
③ Use 50 to 1 turns ratio.
④ Includes capacitor C89.
⑤ Used in initial production (4 leads).
⑥ Used in later production (5 leads).
⑦ Use original rear cover and centering device.
⑧ When replacing part #100-0019, jumper terminals #3 and #5; when replacing part #100-0022, omit jumper and connect center terminals of vert. yoke (#5 or #6) as in original circuit.
⑨ Connect horizontal damping network across terminals #1 and #2. Use original network if necessary.
⑩ Remove 270MMF capacitor from terminals #1 and #2.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4	7	#1-volt rect. plate lead	#1-volt rect. plate lead	#1-volt rect. plate lead	7	#1-volt rect. plate lead	7
3	6	9	9	9	6	6	6
2	3	7	7	5	3	3	3
1	2	1	1	1	2	2	2
Special Notes →				⑪			

⑪ Jumper terminals #7 and #8.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI	IMPEDANCE SEC	REPLACEMENT DATA SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	2KΩ	3.4Ω	143-0041	Z1101	A-3025	A-3322	32S45 ①	S-12X	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V C IMP	REPLACEMENT DATA SYLVANIA PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3.4Ω	539-0403	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SYLVANIA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	UHF Ant.Coil	0Ω						
L2	UHF Mixer Coupling Coil	0Ω						
L3	UHF Osc. Coupling Coil	0Ω						
L4	Fil. Choke	0Ω						
L5	Fil. Choke	0Ω						
L6	Cathode Choke	0Ω						
L7	UHF IF Output	0Ω CT						
L8	VHF Ant. Trans.	.1ΩCT	.1Ω	111-0022				
L9	UHF IF Input	0Ω						
L10	VHF Ant. Coils	0Ω						Channels 7 thru 13
L11	VHF Ant.Coil	0Ω						Channel 6
L12	VHF Ant.Coil	0Ω						Channels 8 thru 5
L13	VHF Ant.Coil	0Ω						Channel 13
L14	Fil. Choke	0Ω						
L15	Neut.Coil	0Ω						
L16	RF Choke	.1Ω						
L17	RF Coil	.1Ω						
L18	UHF IF Coil	0Ω						
L19	VHF RF Coils	0Ω						
L20	VHF RF Coil	0Ω						Channel 6
L21	VHF RF Coil	0Ω						Channel 13
L22	UHF IF Coil	0Ω						
L23	VHF Mixer Coils	0Ω						
L24	VHF Mixer Coil	0Ω						Channel 6
L25	VHF Mixer Coil	0Ω						Channel 13
L26	Fil. Choke	0Ω						
L27	RF Coil	0Ω						
L28	VHF Osc. Coils	0Ω						
L29	Conv. Plate	0Ω						
L30	1st.Video IF	.1Ω	1Ω	119-0007 •	17-4521 •	TV-128	6323	Includes 47.25MC trap
L31	Fil. Choke	0Ω		147-0014	19-3001	TV-189	6604	.7 Microhenry
L32	2nd.Video IF	.1Ω	.1Ω	119-0003	17-5002	TV-137	6323	Includes 41.25MC trap
L33	Fil. Choke	0Ω		147-0014	19-3001	TV-189	6604	.7 Microhenry
L34	3rd.Video IF	.1Ω	.1Ω	119-0006	17-5004	TV-138 ¤	6323 ¤	
L35	4th.Video IF	.3Ω	.3Ω	136-0004	17-5004	TV-135	6324	
L36	Series Peaking Coil	1.5Ω		136-0030	19-3001		6604	1.5 Microhenries
L37A	4.5MC trap	5.5Ω						
B	1st.Sound IF	1.3Ω		130-0009				
L38	Shunt Peaking Coil	20Ω		131-3021	19-3660 ¤		6348	710 Microhenries, wound on 4.7KΩ resistor
L39	Series Peaking Coil	1Ω		131-3030	19-4301 •	TV-185 •	6134 •	230 Microhenries, wound on 27KΩ resistor
L40	2nd.Sound IF	1.5Ω	3Ω	130-0008	17-3489		6203	
L41	Quadrature Coil	7.3Ω		134-0008	17-3036		1481	
L42	Horiz.Osc.	25Ω	88Ω	143-0004	20-1403 †	TV-183 †	6183 †	Waveform winding-37Ω
L43	RF Choke	1.8Ω		118-0010	19-1005		4612	9.6 Microhenries
L44	RF Choke			118-0010	19-1005		4612	9.6 Microhenries-Note 1
L45	RF Choke			118-0010	19-1005		4612	9.6 Microhenries-Note 1

* Drill mounting holes.
• Parallel with 27KΩ resistor.
¤ Detune trap.
▲ Parallel with 4.7KΩ resistor.
† Reverse coil mounting in can.
Note 1. Used in chassis 1-527-1 (Code C04 thru C07) and chassis 1-527-2 (thru code C01).

FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000 (%)	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L46	.200ADC	52Ω	1.37 Hy.	145-0016	C6040	C-3994	C-3327	36C41	C-31X ①

① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	SYLVANIA PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.200A	517-0009	1028A	RS-250	6S250	5Q1	300	
M2	.200A	517-0009	1028A	RS-250	6S250	5Q1	300	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		SYLVANIA PART No.	SYLVANIA PART No.	
M3	1N82A	1N82A	1N82A	UHF Mixer

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M4	Tuner	323-0056	VHF tuner - used with VHF tuner #323-0057
M5	Tuner	323-0058	VHF tuner - used on some versions.
M6	Tuner	323-0057	UHF tuner - used with VHF tuner #323-0056
M7	Centering Device		Part of yoke - rear cover
M8	Ion Trap	400-0022	
B3	Trimmer Cap.	172-0038	Horiz. Range (10-160MMF)
	Knob	740-0074	On-off-volume, vert. hold, horiz. hold
	Knob	740-0075	Fine tuning, contrast
	Knob	743-0030	UHF channel selector
	Knob	743-0029	VHF channel selector (VHF models only)
	Knob	743-0035	VHF channel selector (VHF-UHF models only)
	Safety Glass	710-0009	
	Mask	716-0017	Includes picture tube support

TROUBLE SHOOTING AIDS (cont)

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HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V12, V13, V14 and V15. Check waveform W12.

If Satisfactory	If Unsatisfactory
Check T3, T5A, C87, C84, C85, C86, C83, R84 and other associated components.	Check L42, C79, C80, C82, R80, R81, R76, R79 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V13 and V14. Check M1 and M2. Check C82, R84, T3, T5A and other associated components.

BLOOMING

Check by substitution V13, V14 and V15. Check M1 and M2. Check R84, R87, C82 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video."

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or no Sound."

RASTER, NO SOUND, NO PICTURE

Check by substitution V2, V3, V4, V5, V6 and V7. Check video IF components for failure or change of value. Raster, No Sound, No Picture, UHF, substitute V1.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set."

KEYSTONE EFFECT

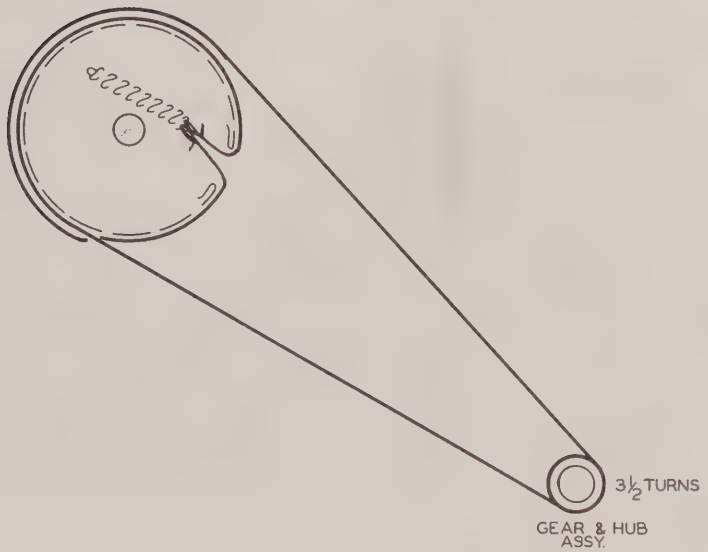
Check T5 and its associated components.

INTERMITTENT STREAKS

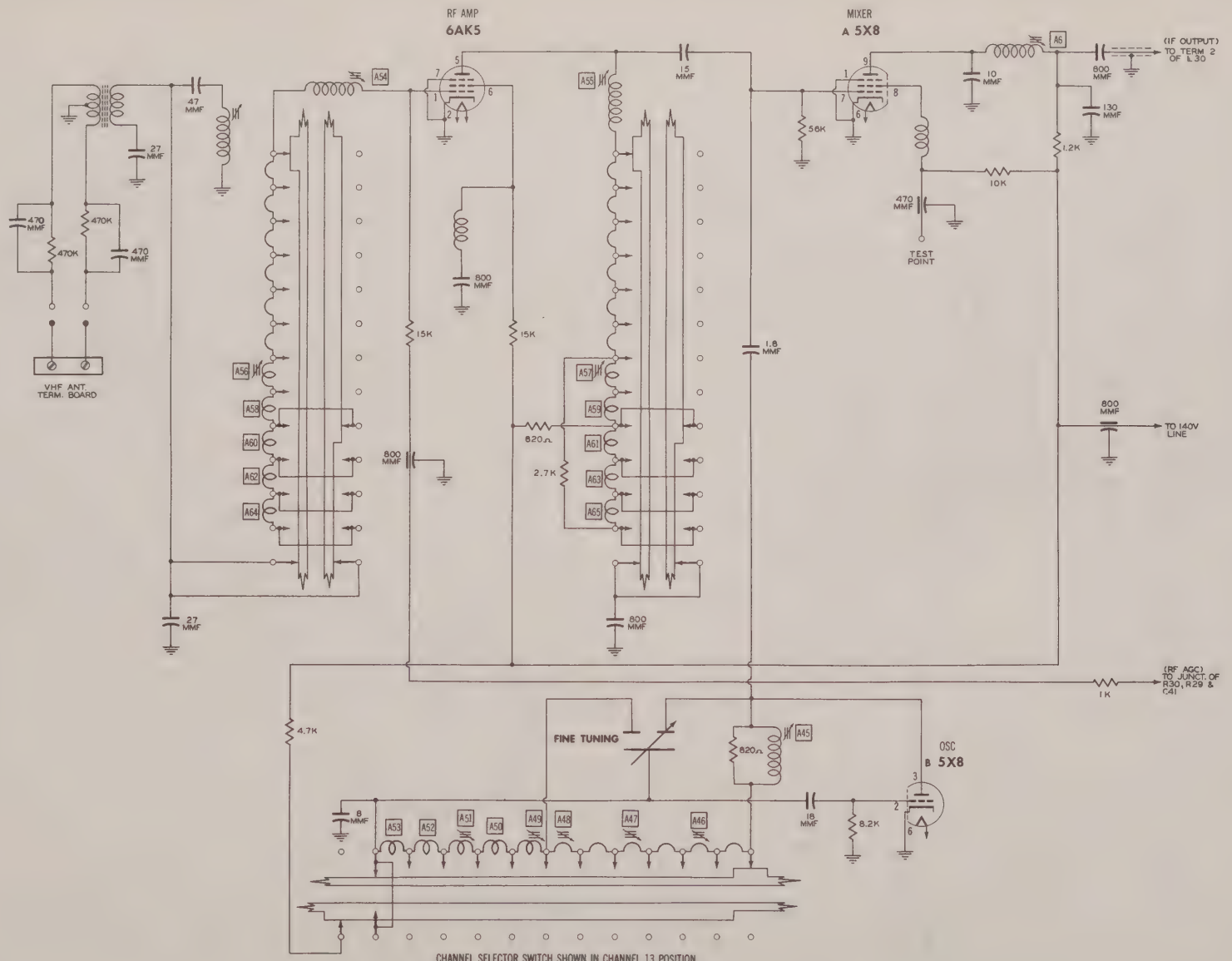
Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

UHF TUNING PULLEY FULLY COUNTER CLOCKWISE POSITION



UHF DRIVE CORD STRINGING



CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION

VHF TUNER 323-0058 USED WITH SOME VERSIONS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE TUNER SCHEMATIC

PROPERTY OF
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DENVER, COLORADO

SYLVANIA MODEL
511 Series (Ch. 1-527-1, -2)

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION

See tube placement chart for rear panel service location adjustment on page 10.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to the set. Adjustment is located on top of chassis. Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (L42) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, it is necessary to remove the rear cover and supply power to the set. Adjust the buzz control (R8) for maximum volume and minimum buzz.

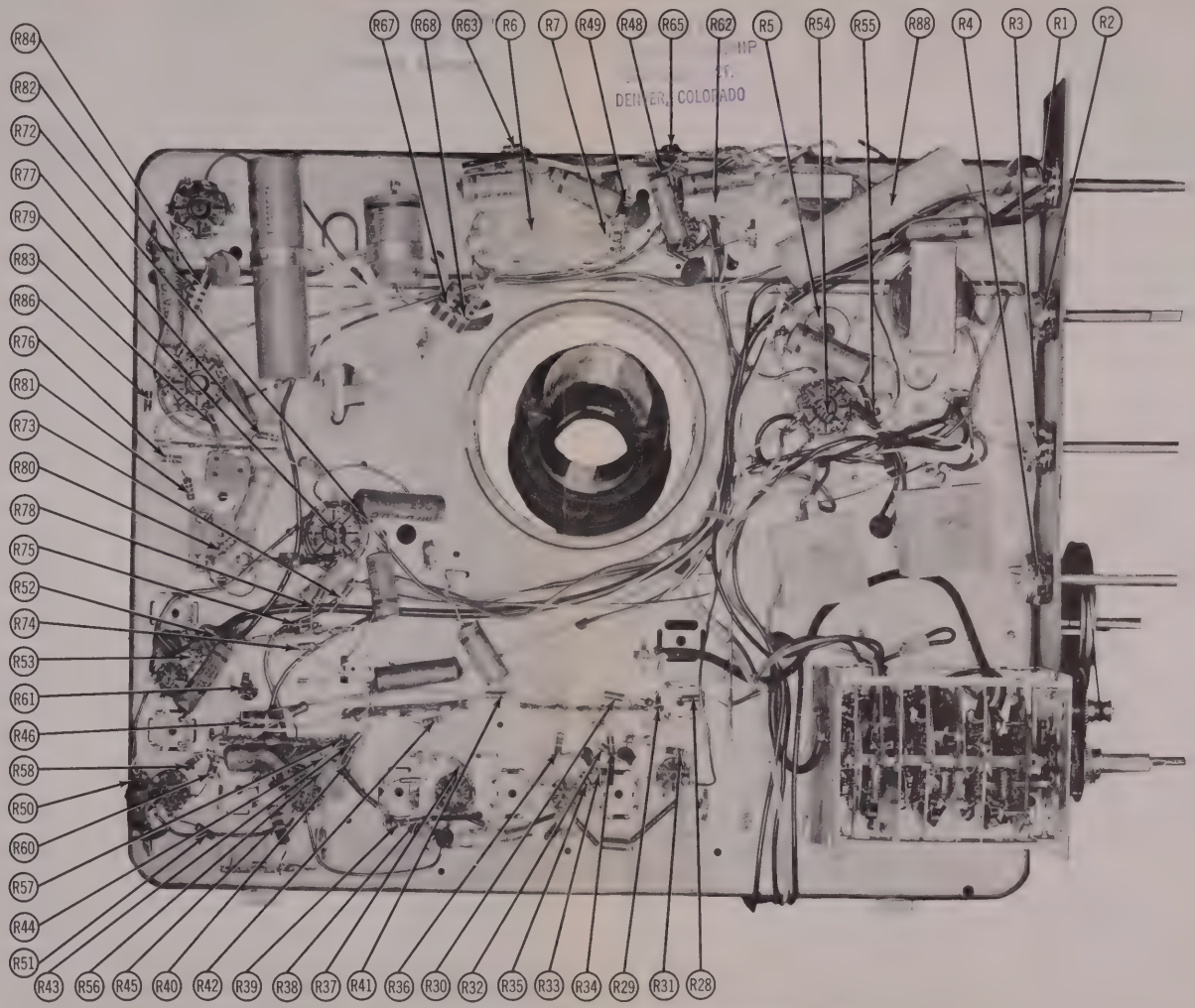
CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL

1. Remove all push-on type control knobs from side panel of cabinet, except the VHF channel selector and fine tuning knobs. The channel selector knob is held in place by a "spring lock". To remove switch the channel selector knob to channel 6 position, rotate fine tuning knob until the slot in the fine tuning knob shank lines up with the slot in the channel selector knob shank. Insert a screwdriver in slot to depress the "spring lock" and remove channel selector and fine tuning knobs.
2. Remove 8 wood screws. Remove rear cover.
3. Disconnect speaker leads.
4. Remove 5 cabinet mounting bolts (2 on each side, 1 at the front) from the under side of the mounting board.
5. Lift cabinet from mounting board. CAUTION: Hold safety glass in place when cabinet is lifted from mounting board.
6. Remove 2 speaker nuts. Remove speaker.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRAV-LER
MODEL 55-38

TRADE NAME	Trav-ler Model 55-38
MANUFACTURER	Trav-ler Radio & Tel. Corp., 571 W. Jackson Blvd., Chicago, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier.
POWER SUPPLY	110-125 Volts AC-DC RATING .21 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1610KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna terminal on gang. Low side to B-.	455KC (400Ω Mod.)	Tuning gang Fully open	Across Voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1610KC	"	"	A5	"
3.	"	"	540KC	Tuning gang Fully closed	"	A6	"
4.		Loop	1400KC	1400KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF AMP	12BA6	12BA6	7BK	
V3	Det. -AVC-AF Amp	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	50	150	EC-33			TCD49	TDL-D50-150	MTD-1550	
B	50	150							
C2	.05	400	PC-5	DF-503		PT415	IMP4-S5	330415	
C3	47		CC-12	D6-470	831-470	ZT-5447		K-1447	
C4A	220								
B	2000								
C	5000		♦MC-19	♦PC-150	♦1408-01				
D	250								
E									
C5	5000		CC-3	DD-502	811-005	DC525	IMP6-D5	C-1250	
C6	.05	400	PC-5	DF-503		PT415	IMP4-S5	330415	
C7	.1	400	PC-8	DF-104		PT401	IMP4-P1	330401	

♦ Items C4A, C4B, C4C, C4D, C4E, R6A, R6B, and R6C are combined in one unit. When replacing items separately, items C4D and C4E should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½		Q13-137	A47-1Meg-Z	AB-70	U-53	Volume
B	Shaft			Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch			76-1	SWE-12	KB-1	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	22KΩ	½	1R-9	BTS-22K	
R3	33Ω	½	1R-17	BTS-33	
R4	100Ω	½		BTS-100	Note 1.
R5	3.3Meg	½	1R-23	BTS-220K	

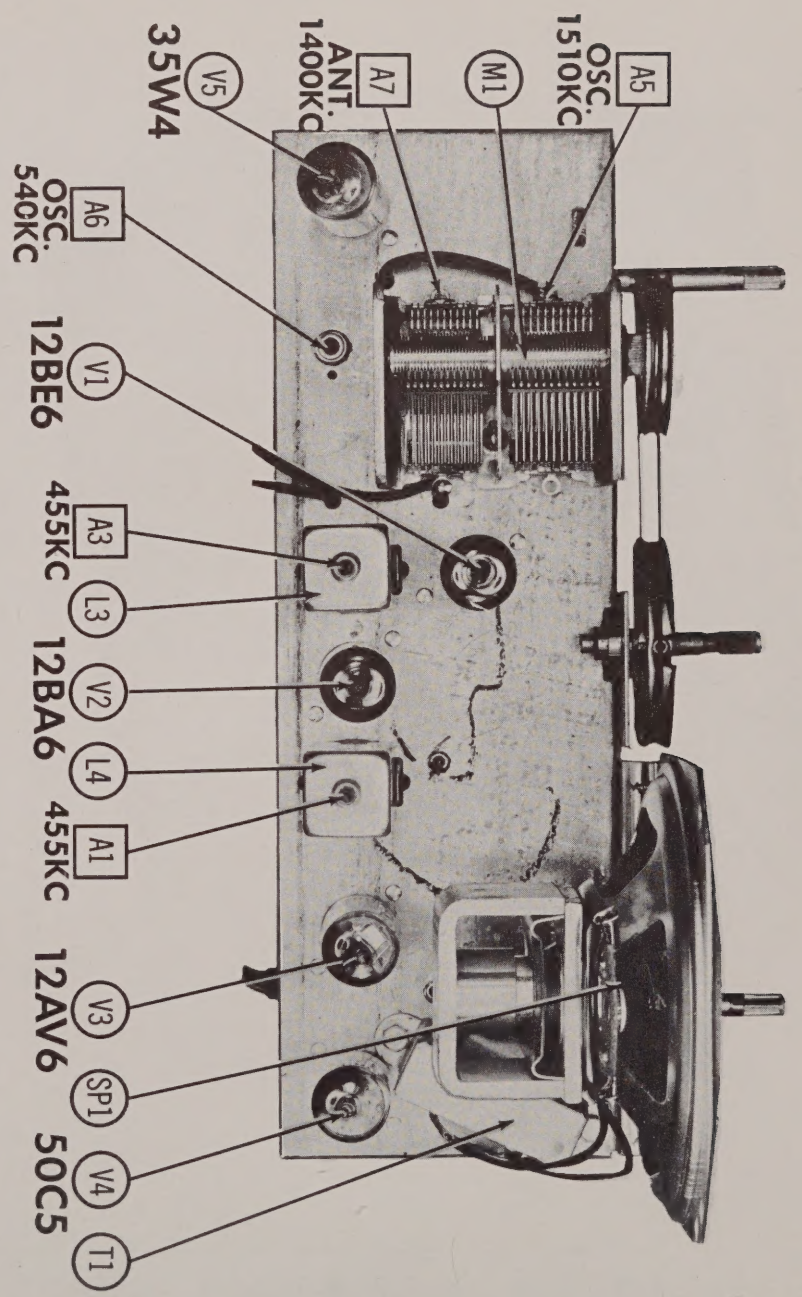
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6A	6.8Meg	½	♦MC-19	BTS-6.8Meg	
B	470KΩ	½		BTS-470K	
C	470KΩ	½		BTS-470K	
R7	220Ω	½	1R-114	BTS-220	
R8	1000Ω	1	1R-42	BTA-1000	
R9	220KΩ	½	1R-20	BTS-220K	
R10	33Ω	½	1R-17	BTS-33	

♦ Items R6A, R6B, R6C, C4A, C4B, C4C, & C4E are combined in one unit.
Note 1. Some versions in a 47Ω resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.4KΩ	3.4Ω	AT-14	Z1102	A-3031	A-3336	24S50A	S-16X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

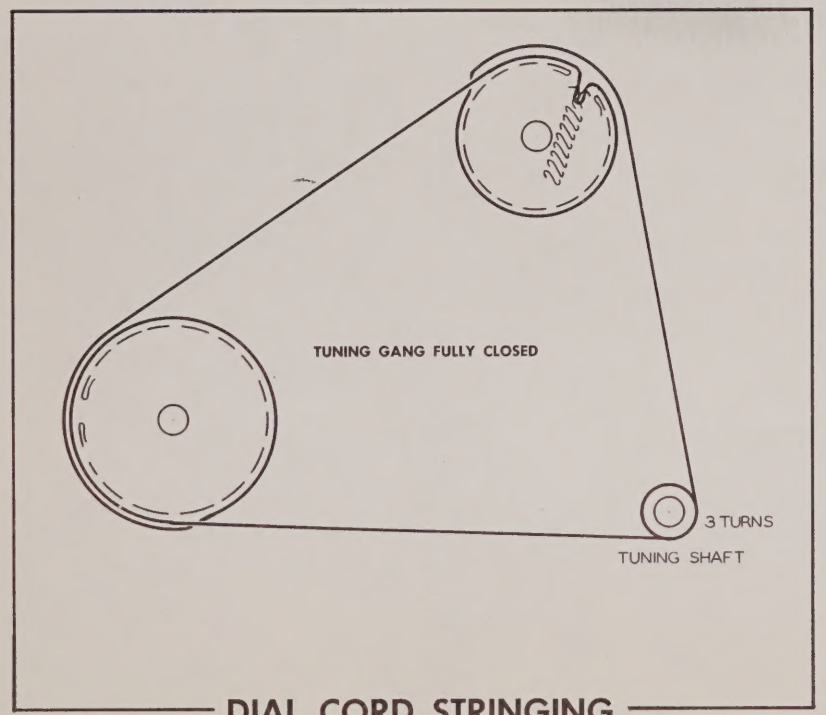
ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRAV-LER PART No.	QUAM PART No.	
SP1	4"	PM	3.4Ω	SPK-38	4A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Antenna coil	1.5Ω		LL-39				
L2	Osc. coil	.6Ω	6Ω	LO-21			71-OSC	
L3	Input IF	26Ω	26Ω	LI-13	16-6758	BC-352	12-C1	
L4	Output IF	26Ω	26Ω	LI-13	16-6758	BC-353	12-C2	

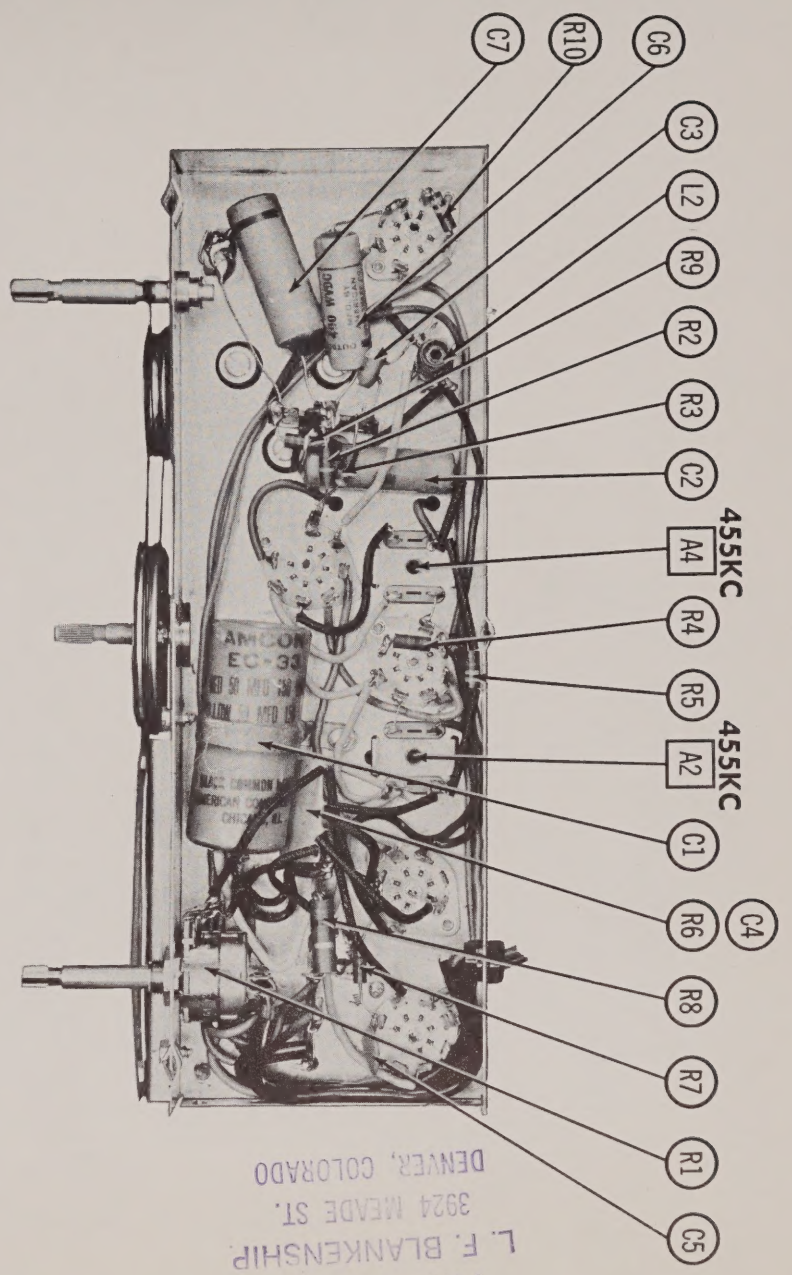
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M1	Tuning Cap.	GC-16	2 Gang (28-385 MMF, 28-175 MMF.)



DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



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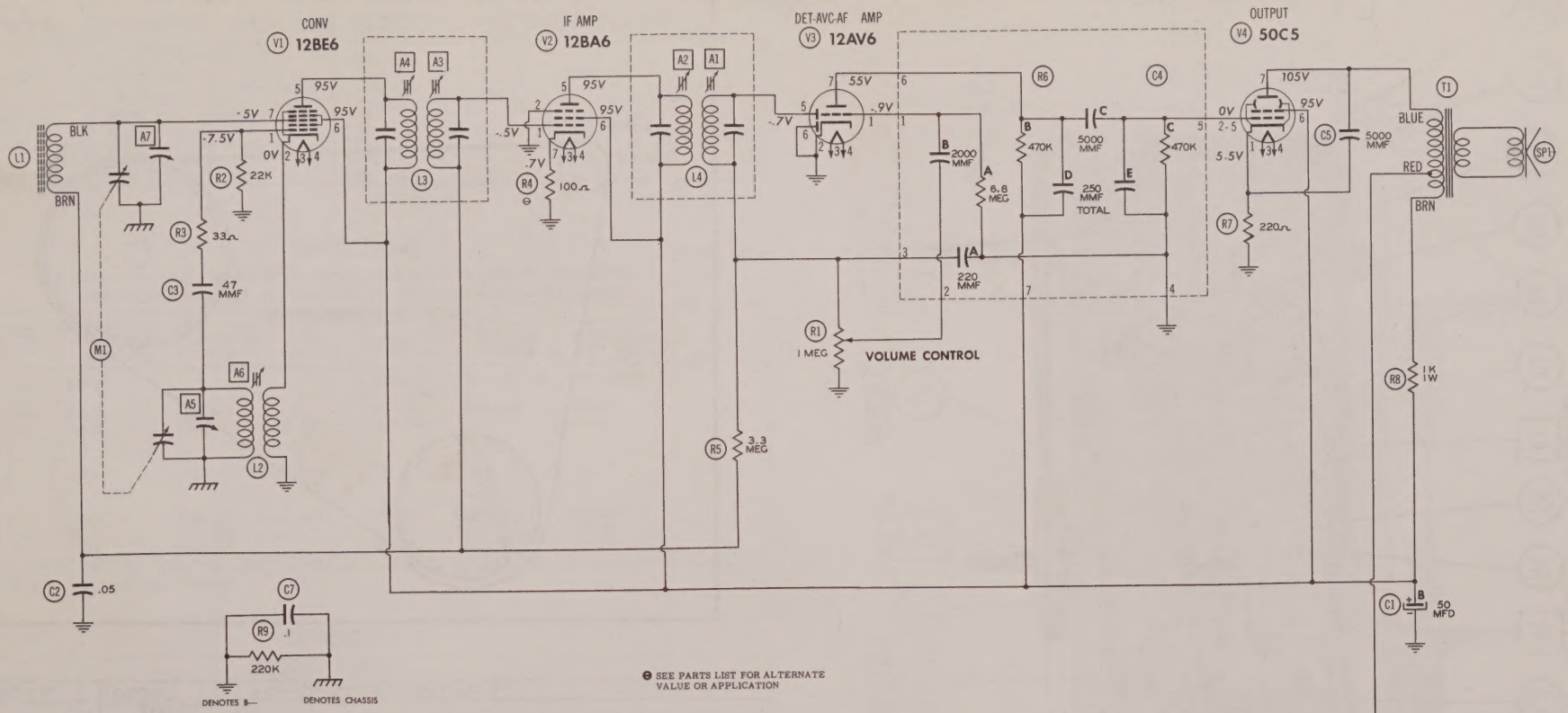
TRAV-LER MODEL 55-38



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.7Ω	12Ω	25Ω	†1KΩ	†1KΩ	4.3Meg
V 2	12BA6	4.3Meg	0Ω	25Ω	38Ω	†1KΩ	†1KΩ	100Ω
V 3	12AV6	470KΩ	0Ω	0Ω	12Ω	1Meg	NC	†47IKΩ
V 4	50C5	220Ω	470KΩ	38Ω	88Ω	470KΩ	†1KΩ	†220Ω
V 5	35W4	TP	NC	88Ω	122Ω	117Ω	117Ω	50KΩ

TP-TIE POINT
NC-NO CONNECTION
† MEASURED FROM PIN 7 OF V5.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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